

Center for Economic Studies and Research Data Centers Research Report: 2016

Research and Methodology Directorate

Issued June 2017



MISSION

The Center for Economic Studies partners with stakeholders within and outside the U.S. Census Bureau to improve measures of the economy and people of the United States through research and innovative data products.

HISTORY

The Center for Economic Studies (CES) was established in 1982. CES was designed to house new longitudinal business databases, develop them further, and make them available to qualified researchers. CES built on the foundation laid by a generation of visionaries, including Census Bureau executives and outside academic researchers.

Pioneering CES staff and academic researchers visiting the Census Bureau began fulfilling that vision. Using the new data, their analyses sparked a revolution of empirical work in the economics of industrial organization.

The Federal Statistical Research Data Center (RDC) program expands researcher access to these important new data while ensuring the secure access required by the Census Bureau and other providers of data made available to RDC researchers. The first RDC opened in Boston, Massachusetts, in 1994.

ACKNOWLEDGMENTS

Many individuals within and outside the Census Bureau contributed to this report. **Randy Becker** coordinated the production of this report and wrote, compiled, or edited its various parts. **Kristin Sandusky** and **James R. Spletzer** authored Chapter 2. **Barbara Downs** and **Shawn Klimek** authored Chapter 3. **Brian Holly** provided the material found in Appendix 3. Our RDC administrators and executive directors helped compile information found in Appendixes 2 and 6. Other CES staff contributed updates to the other appendixes.

Linda Chen and **Donna Gillis** of the Public Information Office provided publication management, graphics design and composition, and editorial review for print and electronic media. The Census Bureau's Administrative and Customer Services Division provided printing management.

DISCLAIMER

Research summaries in this report have not undergone the review accorded Census Bureau publications, and no endorsement should be inferred. Any opinions and conclusions expressed herein are those of the author(s) and do not necessarily represent the views of the Census Bureau or other organizations. All results have been reviewed to ensure that no confidential information is disclosed.

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SUGGESTED CITATION
U.S. Census Bureau,
*Center for Economic Studies
and Research Data Centers
Research Report: 2016*,
U.S. Government Printing Office,
Washington, DC, 2017



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A MESSAGE FROM THE CHIEF ECONOMIST

Our annual report provides a good opportunity to reflect on the many research and development activities at the Center for Economic Studies (CES) over the last year and to provide some discussion on where we are headed in the near term. The mission of CES is to undertake research and development activities that benefit the U.S. Census Bureau by creating new data products, discovering new ways to use existing Census Bureau products, and suggesting improvements to the agency's existing data products and processes. CES also facilitates the research of others through the Federal Statistical Research Data Center (FSRDC) program, as the data repository for Census Bureau researchers, and as the archivist for Census Bureau business data. These activities either directly or indirectly enhance our understanding of the U.S. economy and its people.



This year's annual report starts with an overview of activities at CES (Chapter 1). The two other chapters focus on research and research support activities. Recent research at CES on the rise of "gig" employment is summarized in Chapter 2, and the FSRDC program is described in Chapter 3.

The "gig" economy has been much in the news lately, but as Kristin Sandusky and Jim Spletzer point out in Chapter 2, difficulties in measuring the "gig" economy make it hard to quantify its importance. Focusing on one aspect of "gig" employment, they find that survey and administrative data often disagree on the relatively straightforward concept of self-employment. Using microdata to uncover the reasons for this disagreement, they conclude that a hybrid approach to measuring nontraditional employment relationships is likely to improve measures.

One of the most exciting developments at CES this year was that the Bureau of Labor Statistics (BLS) joined the FSRDC program. Barbara Downs and Shawn Klimek help provide context for this achievement in Chapter 3, where they describe the history of the FSRDC program and plans for its future growth. As they note, plans include not only expansion but also a deepening commitment to scientific principles as we explore ways to improve replicability and reproducibility of research in the FSRDCs.

Over the coming year, we will continue research and development activities to improve our existing data products, including the Business Dynamics Statistics and Quarterly Workforce Indicators. We will also continue our research efforts to better understand the U.S. economy, improve content on new and existing surveys, and discover innovative uses of administrative and commercial data. Finally, we look forward to the further expansion of the FSRDC program, especially by including more federal partners.

(Continued)

A MESSAGE FROM THE CHIEF ECONOMIST—Con.

Thank you to everyone who contributed to our annual report. Randy Becker compiled and edited all of the material. Editorial review was performed by Donna Gillis and design services and cover art production by Linda Chen, both of the Public Information Office. Other contributors are acknowledged on the inside cover.

A handwritten signature in black ink that reads "Lucia S. Foster". The script is cursive and fluid.

Lucia S. Foster, Ph.D.
Chief Economist and Chief of the Center for Economic Studies

Chapter 1. 2016 News

THE FSRDC NETWORK

The Federal Statistical Research Data Center (FSRDC) network continued its successful expansion in 2016. In October, the Bureau of Labor Statistics (BLS) began allowing researchers access to its restricted data at the FSRDCs. Previously, researchers had to visit BLS headquarters in Washington, D.C., to use such data. To begin with, BLS is making available data from its National Longitudinal Surveys of Youth and its Survey of Occupational Injuries and Illnesses. More BLS data will be added to the Research Data Centers (RDCs) based on user demand. To learn more, visit <www.bls.gov/rda>.

We end 2016 with a total of 24 RDCs, after the opening of two new locations—one at the Federal Reserve Bank of Kansas City and the other at the University of Maryland. The Kansas City RDC is a consortium that also includes the Kauffman Foundation, University of Kansas, University of Kansas Medical Center, University of Missouri, and University of Missouri–Kansas City. The University of Maryland RDC is a collaborative effort between the university’s Robert H. Smith School of Business, College of Behavioral and Social Sciences, and School of Public Health.

In addition, six new RDC locations were announced in 2016. The National Science Foundation

“Making our underlying data more accessible for researchers from coast to coast is a huge step forward, and I hope it will lead to a surge in research using BLS data. I believe that having more researchers use BLS data not only will showcase new uses of the data but improve our products by encouraging researchers from BLS and other organizations to collaborate. It also supports transparency because external researchers can analyze inputs to our published statistics.”

Erica Groshen,
Commissioner,
U.S. Bureau of Labor Statistics
October 18, 2016, blog



granted awards for the establishment of RDCs at the University of Colorado Boulder and the University of Kentucky, while the Census Bureau approved four new branches of existing RDCs at the Federal Reserve Bank of Philadelphia, the University of Texas at Austin, the University of Illinois at Urbana–Champaign, and Georgetown University. These six new locations are all expected to open in 2017. For more information and updates, visit <www.census.gov/fsrdc>.

At year’s end, the RDCs hosted over 800 researchers working on about 270 different projects. In 2016, 82 new RDC projects began. Of those, 40 use Census Bureau microdata (see Appendix 3-A), while 11 use data from the Agency for Healthcare Research and Quality and 31 use data from the National Center for Health Statistics (see Appendix 3-B).

Meanwhile, RDC researchers using Census Bureau microdata continue to be tremendously prolific, with at least 69 publications and another 73 working papers in 2016 (see Appendix 2). As the table on page 5 shows, RDC-based research is being published in many of the top peer-reviewed journals. Recent and forthcoming articles appeared in 11 of the top 20 journals in economics, including several articles in the *American Economic Review*, *Journal of Political Economy*, *Quarterly Journal of Economics*, and *The Review of Economic Studies*.

Many graduate students use the RDCs for their PhD dissertation research. Currently, there are about 110 such students from 40 different universities, including 84 who use Census Bureau microdata. (This does not include the many graduate students who use the RDCs as research assistants to others.)

NOTABLE 2016 PUBLICATIONS BY CES STAFF

“The Rise and Fall of Unions in the United States”

Emin Dinlersoz and Jeremy Greenwood

Journal of Monetary Economics,

Vol. 83, October 2016, pp. 129–146.

Union membership in the United States displayed a \cap -shaped pattern over the twentieth century, while income inequality sketched a \cup . A model of unions is developed to analyze these facts. There is a distribution of productivity across firms in the economy. Firms hire capital, plus skilled and unskilled labor. Unionization is a costly process. A union chooses how many firms to organize and the union wage. Simulation of the model establishes that skill-biased technological change, which affects the productivity of skilled labor relative to unskilled labor, can potentially explain the observed paths for union membership and income inequality.

“Buyer-Seller Relationships in International Trade: Do Your Neighbors Matter?”

Fariha Kamal and Asha Sundaram

Journal of International Economics,

Vol. 102, September 2016, pp. 128–140.

Using confidential U.S. customs data on trade transactions between U.S. importers and Bangladeshi exporters between 2003 and 2009, and information on the geographic location of Bangladeshi exporters, we show that the presence of neighboring exporters that previously transacted with a U.S. importer is associated with a greater likelihood of matching with the same U.S. importer for the first time. This suggests a role for neighbors in generating importer-exporter matches. Our research design permits us to isolate potential gains from neighborhood exporter presence that are partner-specific, from overall gains previously documented in the literature.

Many of these doctoral candidates are eligible to apply to the Center for Economic Studies (CES) Dissertation Mentorship Program. Program participants receive two principal benefits: mentoring by a CES staff economist who advises the student on the use of Census Bureau microdata and a visit to CES to meet with

staff economists and present research in progress. In 2016, CES accepted 4 new participants into the program and has had 32 since the program began in 2008.

The microdata available to researchers has also expanded. Among the notable releases are the first data from the Annual

Survey of Entrepreneurs as well as historical data from a number of supplements to the Current Population Survey. See Appendix 5 for more details.

RELEASES OF PUBLIC USE DATA

CES released five public use data products in 2016: *Business Dynamics Statistics*, *Quarterly Workforce Indicators*, *OnTheMap*, *OnTheMap for Emergency Management*, and *Job-to-Job Flows*.

In September 2016, the Census Bureau released the 2014 ***Business Dynamics Statistics*** (BDS), which provides annual statistics on establishment openings and closings, firm startups and shutdowns, employment, job creation, and job destruction, from 1976 to 2014, by firm (or establishment) size, age, industrial sector, state, and metropolitan area. More information about the BDS can be found at www.census.gov/ces/dataproducts/bds.

The ***Quarterly Workforce Indicators*** (QWI) is a set of economic indicators—including employment, job creation, earnings, worker turnover, and hires/separations—available by different levels of geography, industry, business characteristics (firm age and size), and worker demographics (age, sex, educational attainment, race, and ethnicity).

In 2016, the Census Bureau updated the *National Quarterly Workforce Indicators* (NQWI). First released in 2015, the NQWI contains national statistics and thereby provides a consistent reference point for users of the

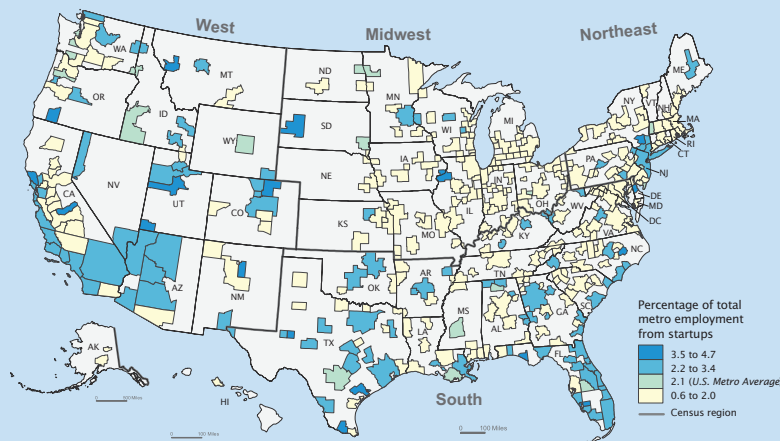
Publications by RDC Researchers and CES Staff: 2016 and Forthcoming

Economics journals (by rank)	RDC researchers	CES staff	Total
AAA (1–5)	8	0	8
AA (6–20)	6	7	13
A (21–102)	20	15	35
B (103–258)	4	1	5
C (259–562)	6	2	8
D (563–1202)	1	0	1
Journals outside of economics	17	4	21
Book chapters	7	19	26
TOTAL	69	48	117

Note: Based on known publications listed in Appendix 2. Ranking of journals in economics is taken from Combes and Linnemer (2010). In select cases, a ranking was imputed using the journal ranking from RePEc.

Startups' Contribution to Metropolitan Employment

Startups contributed more to employment in some metropolitan areas than others in 2014, according to the latest release of the Business Dynamics Statistics. The metro areas with the highest job creation rates from startups—3.5 percent and higher—were mostly in the South and West. Most of the metro areas in the Northeast and Midwest had job creation rates from startups that were lower than the U.S. metro average of 2.1 percent. Though not a focus of the map below, nonmetro areas had job creation rates from startups of 1.9 percent in 2014.

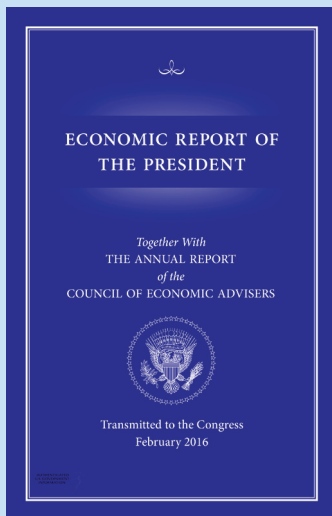


state-level QWI. With this year's update, users can now tabulate by race and ethnicity. More detailed national statistics will be made available in future releases, including tabulations by all ownership job types and NAICS3 industry. For more information, see lehd.ces.census.gov/data/qwi_national_beta.html. These data are available via the *LED Extraction Tool* at ledextract.ces.census.gov.

These data are also available through *QWI Explorer*, and in July, the Census Bureau released version 1.3 of *QWI Explorer*. First launched in beta form in 2014, this Web-based analysis tool enables comprehensive access to the full depth and breadth of the QWI data set. Through an easy-to-use dashboard interface, users can construct tables and charts to compare, rank, and aggregate indicators across time, geography, and/or firm and worker characteristics. Users can download their analyses to an Excel spreadsheet, a PNG/SVG chart image, or a PDF report, or they can share data tables and visualizations via URLs and through social media. This year's updates enable comparisons for state totals and yearly averages. To use *QWI Explorer*, visit qwiexplorer.ces.census.gov.

In September, QWI was also released in the Census Bureau's API (application programming interface). Now, developers and advanced users can access all 32 measures for use in custom-created Web and mobile applications. To access the API's *QWI Endpoint*, visit api.census.gov/data/timeseries/qwi.html.

CES Research Cited in 2016 *Economic Report of the President*



In its chapter on technology and innovation, the 2016 *Economic Report of the President (EROP)* cites joint research between the Census Bureau and the U.S. Patent and Trademark Office that shows that most patenting firms are small and that patenting firms contribute disproportionately to job creation (Graham et al. 2015). The paper “Business Dynamics of Innovating Firms: Linking U.S. Patents with Administrative Data on Workers and Firms,” coauthored by CES economist

Cheryl Grim, is available as Center for Economic Studies Discussion Paper 15-19. In addition, the *EROP* cites three papers by former CES staff (Ryan Decker, John Haltiwanger, Ron Jarmin, and Javier Miranda) on declining business dynamism, including their 2014 article in the *Journal of Economic Perspectives* and their 2016 article in the *American Economic Review: Papers and Proceedings*.

CES staff continued to update and improve **OnTheMap**, with the release of version 6.5 in 2016. *OnTheMap* is an award-winning online mapping and reporting application that shows where people work and where workers live. The easy-to-use interface allows the creation, viewing, printing, and downloading of workforce-related maps, profiles, and underlying data. An interactive map viewer displays workplace and residential distributions by user-defined geographies at census block-level detail. The application also provides companion reports on worker characteristics and firm

characteristics, employment and residential area comparisons, worker flows, and commuting patterns. In *OnTheMap*, statistics can be generated for specific segments of the workforce, including age, earnings, sex, race, ethnicity, educational attainment, or industry groupings. One can also find firm age and firm size, allowing analysis of the impacts of young/old firms or small/large firms in relation to commuting patterns and worker characteristics.

This year’s release of *OnTheMap* includes Massachusetts for the first time (covering 2011–2014) and adds an additional year of

data, extending availability from 2002 through 2014. In addition, the base geography has been updated with Census Bureau TIGER 2015 spatial information, and New England City and Town Areas (NECTAs) are now a supported geography layer.

OnTheMap can be accessed at <onthemap.ces.census.gov>, and *OnTheMap Mobile* can be accessed at <onthemap.ces.census.gov/m/>.

In June, version 4.3 of **OnTheMap for Emergency Management** (OTM-EM) was released. First introduced in 2010, OTM-EM is an online data tool that provides unique, real-time information on the population and workforce for areas affected by hurricanes, floods, wildfires, and winter storms and for federal disaster declaration areas. Through an intuitive interface, users can easily view the location and extent of current and forecasted emergency events on a map and retrieve detailed reports containing population and labor market characteristics for these areas. These reports provide the number of affected residents by age, race, ethnicity, sex, and housing characteristics. The reports also provide the number and location of jobs by industry, worker age, earnings, and other worker characteristics. To provide users with the latest information on rapidly changing events, OTM-EM automatically incorporates real-time data updates from the National Weather Service, Departments of Interior and Agriculture, and the Federal Emergency Management Agency. See Chapter 2 of our

2013 annual report for a more detailed overview of OTM-EM.

The latest release updates the American Community Survey data to the 2010–2014 5-year estimates and updates the underlying data from the Census Bureau's LODS data set to 2014. *OnTheMap for Emergency Management* can be accessed at onthemap.ces.census.gov/em.html.

Both *OnTheMap* and *OnTheMap for Emergency Management* are supported by the state partners under the Local Employment Dynamics (LED) partnership with the Census Bureau, as well as the Employment and Training Administration of the U.S. Department of Labor.

In 2014 and 2015, the Census Bureau launched **Job-to-Job Flows** (J2J), a new set of statistics on the movements of workers between jobs. Job-to-job moves are a primary means by which workers move from lower-paying to better-paying employers and from dead-end jobs to new career ladders. Similarly, employers often seek experienced workers for jobs—workers who are often currently with other firms. These flows of workers across employers, industries, and labor markets are quite large—for example, about half of hires and separations in 2015 were job-to-job flows. Until now, this was a critical gap in the set of available statistics on employment dynamics.

The new J2J statistics include information on the job-to-job transition rate, hires and separations from and to nonemployment, and characteristics of origin and destination jobs of

workers changing jobs. These statistics show the reallocation of workers across different sectors of the economy at both the state and national levels. Rates and counts of transitions are tabulated by industry, state, firm age and size, and demographic characteristics such as age, sex, race, ethnicity, and education.

The beta J2J data files and documentation are available for download at lehd.ces.census.gov/data/j2j_beta.html. More detailed tabulations are planned in future releases.

Meanwhile, at the close of 2016, the Census Bureau was preparing for the release of its beta version of *Job-to-Job Flows Explorer*. This interactive, Web-based analysis and visualization tool allows users to construct tables, maps, and charts to compare, aggregate, and analyze J2J statistics by worker and firm characteristics.

To use *J2J Explorer*, visit j2jexplorer.ces.census.gov. Documentation can be found at lehd.ces.census.gov/applications/help/j2j_explorer.html.

FSRDC Annual Research Conference

The FSRDC Annual Research Conference brings together researchers from the Federal Statistical Research Data Centers (FSRDCs) and from partner agencies, including the Census Bureau, to showcase research using microdata and to share data expertise. This year, the conference was held on September 15 at Texas A&M University and featured 28 presentations in 12 sessions, on themes that included business behavior and performance, health and healthcare, transportation and commuting, social mobility, and residential segregation. A keynote address on the significance for social and behavioral science research of recent and future developments in restricted data was given by Steven Ruggles, Regents Professor of History and Population Studies at the University of Minnesota and director of the Minnesota Population Center. Additional details about the conference can be found at txrdc.tamu.edu/2016-rdc-conf. On the day



Keynote speaker Steven Ruggles at the 2016 FSRDC Annual Research Conference.



Sandra Black, member of the President's Council of Economic Advisers, spoke at the LED Partnership Workshop.

before, the annual FSRDC business meeting was held, bringing together representatives from participating statistical agencies, the executive directors of existing FSRDCs, institutions interested in joining the FSRDC program, and officials from other countries with similar systems. Discussions centered on the program's performance, challenges, and best practices. The next conference will be held at the University of California, Los Angeles on September 13 and 14, 2017.

LOCAL EMPLOYMENT DYNAMICS (LED) PARTNERSHIP WORKSHOP

The 2016 Local Employment Dynamics (LED) Partnership Workshop was held at the Ronald Reagan Building and International Trade Center and the Census Bureau on March 7 and 8, respectively. Now in its seventeenth year, this workshop has been a key component in strengthening the voluntary partnership between state data agencies and the Census Bureau to leverage existing data in the development of new sources of economic and

demographic information for policymakers and data users. The workshop brings together key stakeholders, including state labor market information directors; data analysts and data providers at state and federal agencies, nonprofit organizations, and businesses; and other users of LED data products. They discuss the latest product enhancements, discover how their peers are using the data, and learn about the research that will shape future improvements.

The theme for this year's workshop was "National Perspectives, Local Data." Topics addressed by invited speakers, state partners, and data users included gentrification and neighborhood change, the economic impact of sports stadiums, the construction and manufacturing sectors in Michigan, manufacturing after the Great Recession, and startups and youth employment. CES staff discussed newly available data and enhancements to data applications. CES staff also offered training sessions on Job-to-Job Flows, OnTheMap, OnTheMap for Emergency Management, National QWI, and QWI Explorer. Presentations and materials from the 2016 workshop (and those from previous years) can be found at lehd.ces.census.gov/learning/#workshop.

Dhanurjay Patil, Chief Data Scientist of the United States, Office of Science and Technology Policy, Executive Office of the President, offered the workshop's opening keynote address, and Sandra Black, member of the President's Council of Economic Advisers, was the featured mid-day speaker.

The 2017 LED Partnership Workshop—with the theme "Exposing the Potential of LED Data"—will be held on September 10 and 11.

STATISTICAL AGENCIES COLLABORATE ON RESEARCH WORKSHOPS

BLS-CENSUS RESEARCH WORKSHOP

On June 6, the Bureau of Labor Statistics (BLS) and the Census Bureau cohosted their sixth annual workshop featuring empirical research by economists from both agencies. These annual workshops are intended to encourage and nurture collaboration between researchers at BLS and the Census Bureau.

Bill Wiatrowski, deputy commissioner of BLS, and John Abowd, associate director for research and methodology and chief scientist at the Census Bureau, provided welcoming remarks. This year's workshop consisted of three themed sessions. Each agency presented a paper at these sessions, with discussants from the other agency joining in. In addition, a poster session of seven papers was held. Workshop papers included:

- *Declining Labor Turnover in the United States: Evidence and Implications from the PSID*
- *Measuring the "Gig" Economy*
- *Occupational Shifts, Outsourcing, and Wages*
- *Hours Paid versus Hours Worked: The Implications for Measuring Productivity Using Matched Survey and Administrative Data*

- *Measuring Firm-level Displacement Events with Administrative Data*
- *Which Employers Sponsor Defined Contribution Retirement Plans?*
- *Do Imputed Earnings Earn Their Keep? Evaluating SIPP Earnings and Non-Response with Administrative Records*
- *Employer Sponsored Health Insurance: Comparisons between Public and Private Employers*
- *The Role of Means-Tested Transfers as a Supplement to Earned Income: Trends Across Industries Over Time*
- *Occupations in U.S. Manufacturing Industries, 1870–1900*
- *The Requirements of Jobs: Evidence from a Nationally Representative Survey*
- *Supplemental Poverty Measure Thresholds: Imputing In-Kind Government Transfers to the CE Interview from the CPS*
- *Measurement Challenges in Income Poverty: Estimating the Value of Social Transfers for the U.S. Supplemental Poverty Measure*

The workshop was a success thanks to the researchers from both agencies who participated and especially to Martha Stinson (Census Bureau) and Sabrina Pabilonia (BLS), who organized

the workshop. The seventh annual BLS-Census Research Workshop will be held on June 7, 2017, at the Census Bureau.

BEA-CENSUS RESEARCH WORKSHOP

On November 14, the Bureau of Economic Analysis (BEA) and the Census Bureau cohosted their third annual research workshop. Recognizing that research economists at the two agencies often work on similar topics with similar data sets, these annual workshops provide a forum to discuss topics of common interest, promote collegiality, and provide an opportunity to learn about data from the other agency.

Dennis Fixler, chief economist of BEA, and Ron Jarmin, associate director of economic programs at the Census Bureau, provided opening remarks. This year's workshop consisted of two themed sessions, a poster session, and a panel discussion on new data products of interest to both agencies. Papers included:

- *Measuring the Gig Economy*
- *Valuing 'Free' Information in GDP: An Experimental Approach*
- *Using the MarketScan Claims Data to Make Unbiased Population Inferences about Health Care Spending: Lessons from a Non-Response Perspective*

- *Why Are Employer-Sponsored Health Insurance Premiums So Much Higher for Enrollees in the Public Sector Than in the Private Sector?*
- *Medical Care Expenditure Indexes for Long-Term Care Patients, 2000–2009*
- *Volume Output of Tertiary Education Services*
- *Business and Employment Dynamics of High Tech Industries*
- *Measuring Cross-Country Differences in Misallocation*
- *Does Productivity Explain Markup Dynamics in Mergers and Asset Sales?*
- *The Impact of Hydraulic Fracturing on Manufacturing Plants' Employment, Payroll, and Wages*
- *Sequential Regression Multivariate Imputation in the Current Population Survey Annual Social and Economic Supplement*

The workshop was a success thanks to the researchers from both agencies who participated and especially to Fariha Kamal (Census Bureau) and Marina Gindelsky (BEA), who organized the workshop. Planning for the fourth annual BEA-Census Research Workshop is currently underway.

CES Staff Receive Recognition

In January, Heath Hayward received the Census Bureau's Innovator of the Month Award for his work on Quarterly Workforce Indicators (QWI) dissemination. Heath was inspired by interactions with data users, who wanted more and better ways to access this complex, multidimensional data. He developed tools that allow easy data exploration, including the creation of visualizations in the form of line and bar charts and thematic maps. An easy-to-use dashboard interface also allows users to construct pivot tables to compare and rank labor force indicators such as employment, job creation and destruction, wages, and hires across time, geography, and a wide range of firm and worker characteristics. To see the product of some of Heath's efforts, visit qwiexplorer.ces.census.gov.

Lucia Foster and other team members received a 2016 Bronze Medal Award for establishing the Annual Survey of Entrepreneurs (ASE). First fielded for reference year 2014, the ASE collects data on the characteristics of businesses and their owners and will shed light on the dynamics between entrepreneurship and job creation within the U.S. economy.

Randy Becker was named a recipient of the U.S. Environmental Protection Agency's 2016 Scientific and Technological Achievement Award for his 2013 article published in the *Journal of Environmental Economics and Management* on whether the impact of environmental regulations differs by business size. This research used data from the Census Bureau's Pollution Abatement Costs and Expenditures survey.



Census Bureau Deputy Director Nancy Potok and Heath Hayward.

Chapter 2.

Measuring the Gig Economy

Kristin Sandusky and James R. Spletzer, Center for Economic Studies

Recent advances in technology are changing how workers and employers interact in the twenty-first century labor market. Companies such as Uber, TaskRabbit, Airbnb, and others are examples of new nontraditional modes of employment and income generation. Although the press is full of stories premised on the idea that the share of U.S. jobs without a formal employer-employee relationship is large and growing, there are no government statistics that unambiguously confirm this perception. We discuss multiple ongoing efforts at the U.S. Census Bureau and other statistical agencies to quantify the level and growth of these new nontraditional modes of employment. These efforts include research using existing survey and administrative data and research in support of developing new surveys.

Existing estimates of how many persons engage in such employment, often referred to by the press as “gig” or “on-demand” employment, vary tremendously. For example, a 2015 report by the Government Accountability Office states that the size of the contingent workforce can range from less than 5 percent to more than a third of the total employed labor force, depending on the definition of contingent work and the data source. The upper end of this range has been cited by policymakers as estimates of the size of the gig economy. On the other hand, using different data and a different methodology, a recent

analysis by the JPMorgan Chase Institute finds that 1 percent of adults earned such income from the online platform economy in a given month, and 4 percent earned income over a 3-year period (Farrell and Greig 2016). And in February 2017, Statistics Canada issued a press release quantifying the sharing economy, stating that 0.3 percent of Canadian adults indicated that they had offered peer-to-peer ride services and 0.2 percent offered private accommodation services.

Measuring nontraditional forms of employment is important for many reasons. The federal statistical system must be able to accurately measure employment since employment provides a measure of the overall health of the economy and is used by many stakeholders. If gig employment is growing and yet was not measured by the statistical agencies, then impacted key economic indicators could be biased. Total employment and net job creation statistics would be understated, and labor productivity growth would be overstated.

Estimates of nontraditional forms of employment are useful for many stakeholders. For example, policymakers need these data in making decisions. Since gig employment has no formal employer-employee relationship, it is important to know whether such workers and their families lack access to employer-provided health insurance and retirement plans. Furthermore, as mentioned by Harris and Krueger (2015),

there could be concern that these workers would not enjoy the legal rights and protections afforded under the unemployment insurance system, the workers compensation system, the Fair Labor Standards Act, and other laws and regulations written with more traditional employment arrangements in mind.

Businesses could use estimates of nontraditional forms of employment to better understand the business climate in which they are operating. Furthermore, a gig workforce may require resources and services that are currently unavailable, which could lead to the startup of new business ventures or the expansion of existing businesses.

In this chapter, we document the difficulty of using existing published federal statistics to measure the level and trend of gig employment. We highlight several ongoing efforts at the Census Bureau’s Center for Economic Studies (CES) attempting to overcome this difficulty. Much of the text and many of the graphs in this chapter draw heavily from Spletzer (2016) and Abraham, Haltiwanger, Sandusky, and Spletzer (2017). The primary lesson learned from this research is that efforts to develop linked data sets that combine household survey data, employer survey data, and administrative data are likely to have a high payoff, permitting greater insight into the changing nature of work than is possible using any single data source.

MEASURING GIG EMPLOYMENT USING PUBLISHED FEDERAL STATISTICS

The federal statistical agencies, such as the Census Bureau and the Bureau of Labor Statistics (BLS), do not publish estimates of gig employment. The statistical agencies do, however, publish various estimates of other nontraditional modes of employment, such as the number of self-employed persons, the number of jobs in the temporary help industry, and the number of contingent workers, which are defined by the BLS as those workers for whom no implicit or explicit contract for a continuing work relationship exists. Can any of these existing estimates provide suggestive evidence regarding the level and trend of gig employment?

Looking for gig employment in federal statistics requires a definition of gig employment. The term “gig” originated in the music industry, where musicians go into the studio to record one song or play in a band for one performance. The musicians with such gigs have no expectation of recording at the same studio the following day or playing with the same band the following night. Borrowing from the music industry, we define “gig employment” as one-time jobs where workers are employed on a particular task or for a defined period of time. Individuals engaged in gig work are self-employed rather than wage-and-salary workers, although there are many self-employed who are not gig workers. As such, trends in self-employment, which are publicly available from multiple sources,

are a first place to look for suggestive evidence of whether gig employment has been growing over time.

Figure 2-1 documents trends in self-employment from two large household surveys: the Current Population Survey (CPS) and the American Community Survey (ACS). The red line in Figure 2-1 shows statistics from the monthly CPS, the blue line shows statistics from the monthly ACS, and the two green lines are from the Annual Social and Economic (ASEC) supplement to the CPS. These series differ in the reference period of last week versus last

year and differ in whether self-employment refers to the main job, the longest job, or all jobs. Despite these conceptual differences, all four series from household surveys show that the number of self-employed in the United States has been flat or somewhat declining during the 1996 to 2012 time period, with levels of self-employment between 7½ and 12½ million. This trend is not consistent with the popular perception regarding the growing importance of gig employment.

Figure 2-2 documents trends in self-employment from several administrative sources.

Measures of Self-Employment From Household Surveys

CPS ASEC, All Jobs Last Year: Number of persons who had any self-employment earnings last year (authors' calculations)

CPS ASEC, Longest Job Last Year: Number of persons whose longest job last year was self-employment (authors' calculations)

CPS Monthly, Main Job Last Week: Number of persons self-employed on their main job last week (BLS)

ACS, Main Job Last Week: Number of persons self-employed on their main job last week (Census Bureau)

See Abraham, Haltiwanger, Sandusky, and Spletzer (2017).

Measures of Self-Employment From Administrative Data

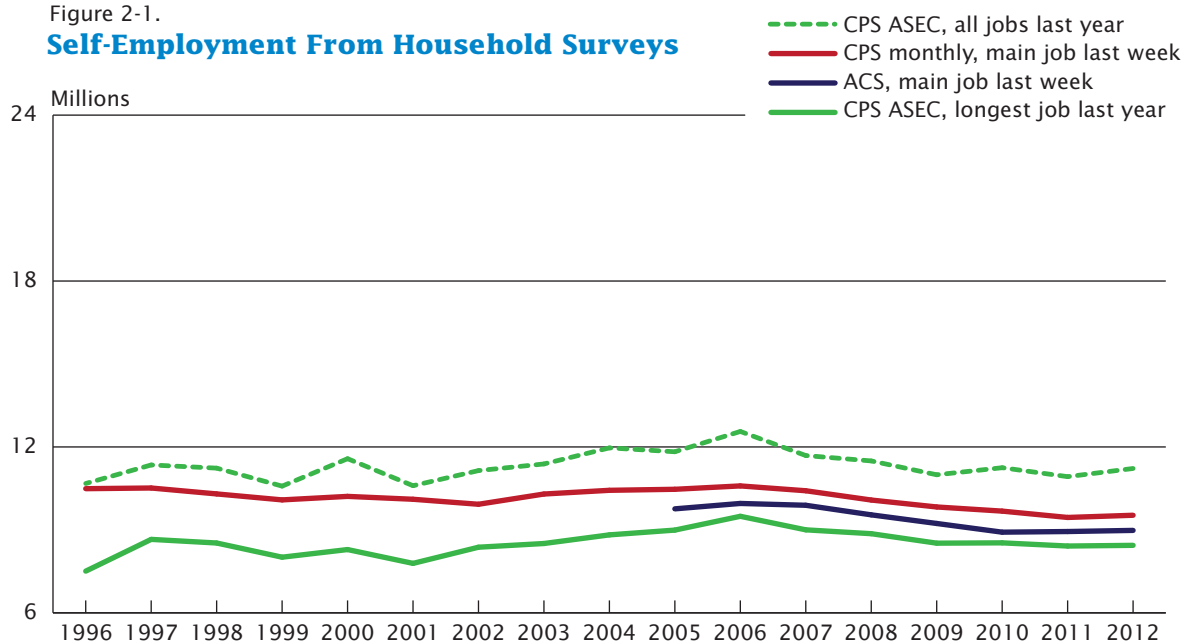
1099-MISC: Number of individuals and businesses that received a 1099-MISC with nonemployee compensation (Department of the Treasury)

Nonemployers: Number of businesses with no paid employees and annual receipts of \$1000 or more; most nonemployers are self-employed individuals operating very small unincorporated businesses (Census Bureau)

DER Self-Employed: Number of persons filing a Schedule SE with the Internal Revenue Service (authors' calculations), DER is the acronym for Detailed Earnings Records

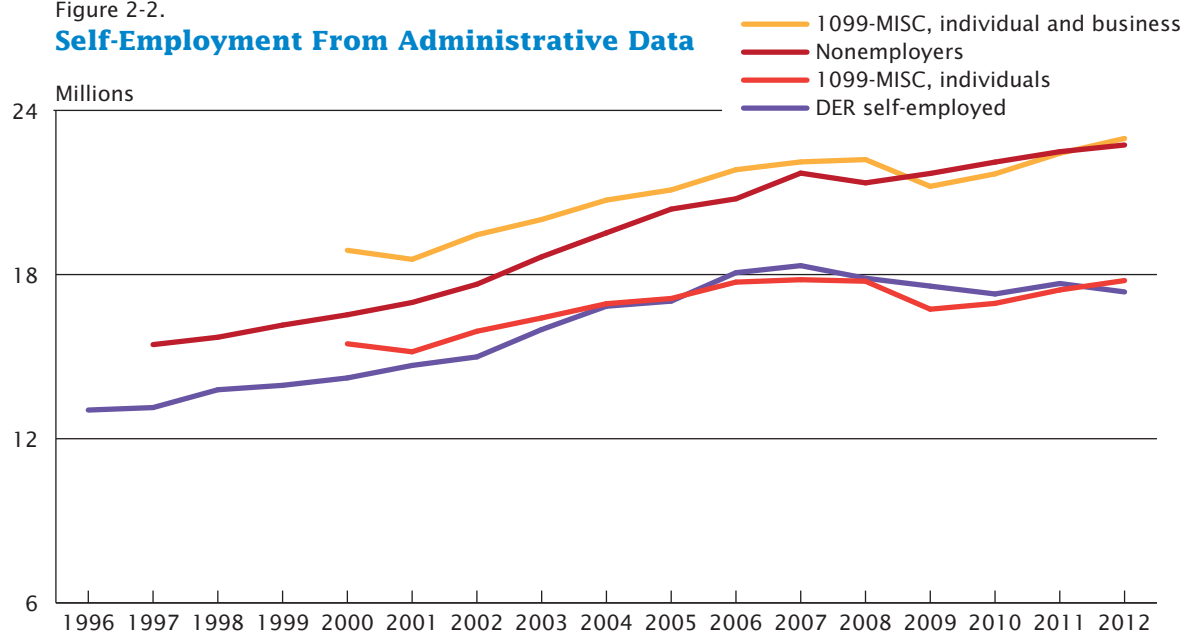
See Abraham, Haltiwanger, Sandusky, and Spletzer (2017).

Figure 2-1.
Self-Employment From Household Surveys



Note: See related text box on previous page for definitions and source.

Figure 2-2.
Self-Employment From Administrative Data



Note: See related text box on previous page for definitions and source.

These self-employment series are most comparable in concept to the CPS ASEC series based on earnings from all jobs during the calendar year. In contrast to Figure 2-1, all four series in Figure 2-2 show that the number of self-employed in the United States has been increasing during the 1996 to 2012 time period, with the number noticeably higher in the administrative data than in the household surveys. Others have also noted divergences between specific series; Katz and Krueger (2016), for example, show the divergent trends in estimates of self-employment based on monthly CPS data and IRS Schedule C filings.

As is evident in Figures 2-1 and 2-2, household surveys consistently show lower levels of self-employment than administrative data sources and a relatively flat long-term trend as contrasted with the upward trend that is evident in administrative data. It would be nice to be able to say that one or the other type of measure—estimates based on household survey data or estimates based on tax data—accurately represents the prevalence and evolution

of self-employment over time. In truth, however, measures of both types suffer from potential weaknesses. On the one hand, constraints on the length of the monthly CPS and ACS questionnaires mean that neither survey instrument probes deeply about household members' work arrangements. This may lead to a variety of reporting errors. On the other hand, administrative data capture only the information that is reported to the tax authorities on tax or information returns. Nonreporting or underreporting of income to the tax authorities is an acknowledged issue, especially with regard to self-employment income (Government Accountability Office 2007, Slemrod et al. 2015).

UNDERSTANDING DIFFERENCES IN PUBLISHED DATA USING LINKED MICRODATA ANALYSIS

One strength of the Census Bureau, above and beyond the surveys we conduct, is our use of administrative records. With a commitment to handling data responsibly and protecting the confidentiality of the data, the Census Bureau is linking survey

and administrative data in order to utilize the strengths of both data sources and provide a more complete picture of the dynamic U.S. economy. These linkages provide a cost-efficient way of increasing our understanding of the interaction between an individual's wage-and-salary employment and self-employment not only at a point in time, but also longitudinally.

Observing both survey and administrative self-employment information for the same set of individuals can help us understand the discrepancies between household survey estimates and administrative data estimates. This direct comparison of information from two sources for the same set of people may also enhance our understanding of the size and growth of gig employment and other non-traditional work arrangements. Using an internal Census Bureau identifier—the Protected Identity Key, or PIK—we have linked records covering the years 1996 through 2012 from the CPS ASEC and the Detailed Earnings Records (DER). For details of the linkage procedure, see Abraham et al. (2017). These two data sets are conceptually comparable in that self-employment is based on reports of any earnings from unincorporated self-employment during the calendar year.

We have used these linked data to ask how well the CPS ASEC and the DER agree with respect to the classification of individuals as self-employed. Table 2-1 displays a weighted cross-tabulation of self-employment status in the CPS ASEC with self-employment status in the DER, using data

Table 2-1.

Self-Employment in the CPS ASEC and in the DER, All Years Pooled 1996–2012

Row% Column%	Not self-employed in DER	Self-employed in DER	CPS total
Not self-employed in CPS	202,311,037 95.1% 97.2%	10,459,170 4.9% 65.4%	212,770,208 95.0%
Self-employed in CPS	5,776,887 51.1% 2.8%	5,531,764 48.9% 34.6%	11,308,651 5.0%
DER total	208,087,924 92.9%	15,990,935 7.1%	224,078,859

See Abraham, Haltiwanger, Sandusky, and Spletzer (2017).

that are pooled across the years 1996–2012. The rows of this two-by-two matrix indicate whether the individual is measured as self-employed in the CPS, and the columns indicate whether the individual is measured as self-employed in the DER. In the interior of this table, the bottom right cell indicates that in the average year, 5.5 million persons are measured as self-employed in both the CPS and the DER. The bottom left cell indicates that 5.8 million persons tell the CPS that they are self-employed but do not file a Schedule SE with self-employment income. The upper right cell indicates that 10.5 million persons tell the CPS they are not self-employed but file a Schedule SE with self-employment income.

Despite the comparability of the definition of self-employment in the two data sources, there is substantial disagreement between them regarding an individual's self-employment status. On average over the 17 years for which we have data, approximately 65 percent of those with self-employment income in the DER do not report any self-employment income in the CPS. Conversely, approximately 51 percent of those with self-employment income in the CPS ASEC do not file a Schedule SE. These conditional percentages are very large. For comparison purposes, we have created a similar table for wage-and-salary earnings in both data sources (not reported here), and find much smaller statistics: about 9 percent of those with DER wage-and-salary income

have no reported CPS ASEC wage-and-salary income for the same year, and about 12 percent of those with reported CPS ASEC wage-and-salary income for a year have no DER wage-and-salary income for that same year.

Whether taking the DER self-employed or the CPS self-employed as the base, a majority of those who are categorized as self-employed in the data set in question are not so categorized in the other data set. At least to some extent, this reflects the complexity of self-employment activity. There are many different types of self-employment work and a highly heterogeneous set of arrangements under which such work might occur. It is likely that neither the household survey data nor the administrative data are ideally suited to pick up all of this activity.

In order to understand why the CPS ASEC reports no increase in self-employment during the 1996 to 2012 time period (see Figure 2-1) whereas the DER reports a large increase (see Figure 2-2), we need to look at the time trends of the off-diagonals from Table 2-1. These off-diagonal time trends, along with the time trend of the lower right interior cell of Table 2-1, are reported in Figure 2-3. It is immediately obvious that virtually all of the growth in DER self-employment relative to CPS ASEC self-employment can be attributed to growth in the number of individuals that are self-employed in the DER but not self-employed in the CPS (the blue line in Figure 2-3). The number of individuals that are self-employed in the CPS but

not in the DER is flat over time (the red line in Figure 2-3).

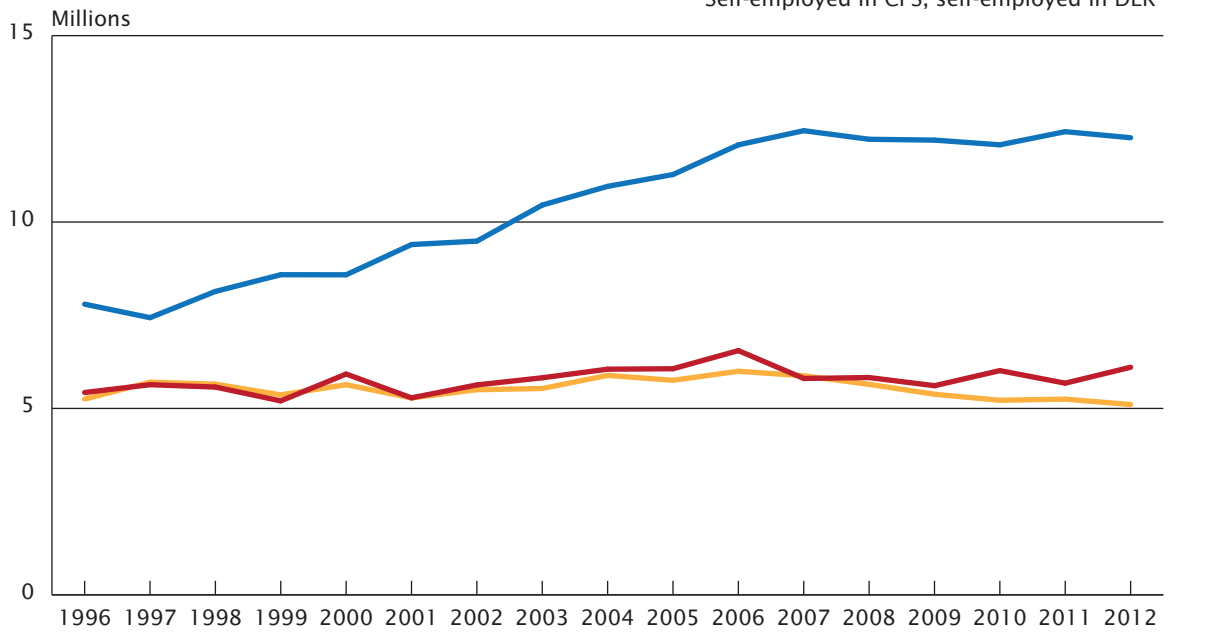
To further explore the discrepancy between the two measures of self-employment, we have looked a bit more closely at these off-diagonal cases. We have grouped those who are self-employed in the DER but not the CPS ASEC into three mutually exclusive categories, where W&S is an abbreviation for wage and salary and SE is an abbreviation for self-employed:

1. *No employment in CPS, SE in DER:* No employment income in the CPS ASEC; self-employment income in the DER.
2. *Only W&S in CPS, both W&S and SE in DER:* Only wage-and-salary income in the CPS ASEC; both wage-and-salary income and self-employment income in the DER.
3. *Only W&S in CPS, only SE in DER:* Only wage-and-salary income in the CPS ASEC; only self-employment income in the DER.

Those in the first two groups may be people performing self-employment work who do not think of themselves (or are not thought of by the CPS respondent in their household) as self-employed, whether because the activity in question generated only a small amount of earnings or for some other reason. The third group may be capturing those who think of themselves as employees but are paid as nonemployees and classified that way in the administrative data.

Figure 2-3.

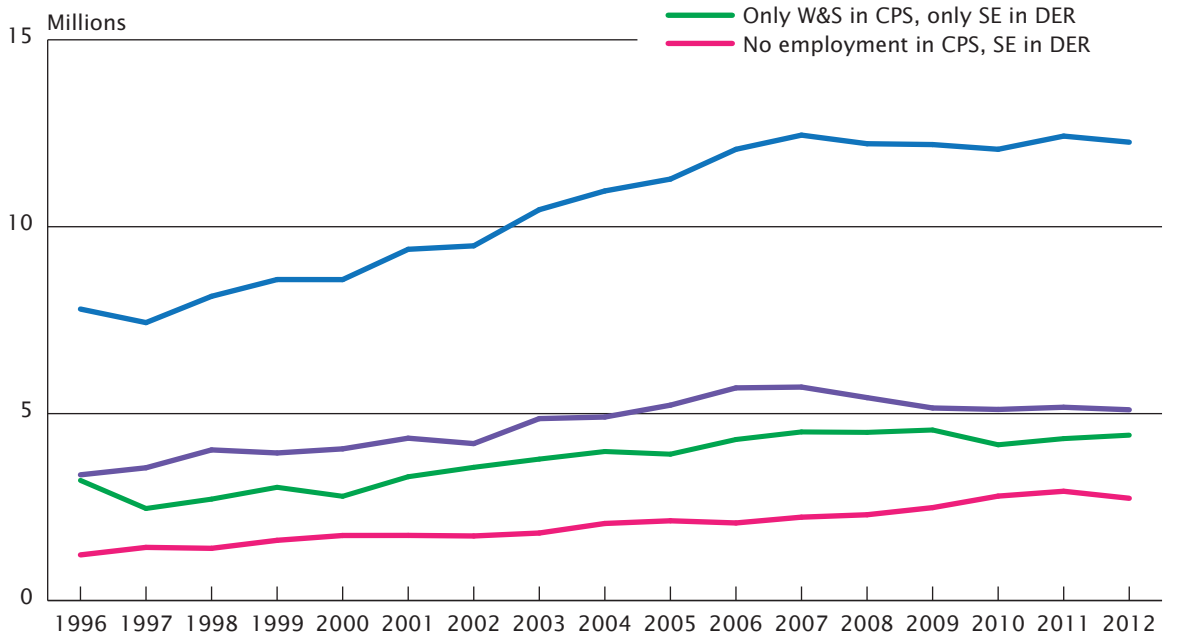
Self-Employment in the CPS ASEC and in the DER by Year



Source: Abraham, Haltiwanger, Sandusky, and Spletzer (2017).

Figure 2-4.

Self-Employment in the DER but Not in the CPS ASEC by Year



Source: Abraham, Haltiwanger, Sandusky, and Spletzer (2017).

Figure 2-4 shows the evolution of these three groups over time (and the sum of these three, from Figure 2-3). The *No employment in CPS, SE in DER* group, the *Only W&S in CPS, both W&S and SE in DER* group, and the *Only W&S in CPS, only SE in DER* groups account for 32 percent, 36 percent, and 33 percent of the growth of the total, respectively. The conclusion to be drawn from this is that about one-third of the divergence is due to misclassification—individuals reporting self-employment income on Schedule SE are indicating on the CPS ASEC that they are wage-and-salary workers. The other two-thirds of the divergence is due to individuals reporting self-employment income on Schedule SE but not reporting this on the CPS ASEC.

MEASURING GIG EMPLOYMENT USING OTHER MICRODATA

The Census Bureau has proposed starting research to understand what are commonly referred to as “1099 workers.” IRS form 1099-MISC records nonemployee compensation, which is payment for services performed by independent contractors who are not employees of the business. The goals of this research are to improve questions asked on surveys such as the CPS and ACS. This can be accomplished by examining whether 1099 workers are exclusively self-employed, whether they use this self-employment income to supplement earnings from traditional employer jobs, and how many nontraditional “gig” jobs these individuals hold in a given year.

Some individuals may have long-standing relationships with one firm; these would be reflected in the individual receiving a 1099-MISC from only one firm for many years consecutively. Other individuals may be receiving multiple 1099-MISCs from multiple firms, with considerable turnover in the latter. These two patterns imply quite different work arrangements from the perspective of both the individual and the firm. Linking information on 1099 workers to other survey and administrative data inside the Census Bureau would further enable us to answer many other questions that researchers and policymakers are asking, including:

- What are the demographic characteristics of persons who are doing 1099 work, and has this changed over time?
- Do 1099 workers live in a household where other members have a wage-and-salary job that provides health insurance?
- Where does 1099 work fit in the career path of individuals?
- Do the dynamics of 1099 work suggest that individuals engage in such work by choice or by necessity?

MEASURING GIG EMPLOYMENT USING NEW SURVEYS

In addition to the microdata research described above, the federal statistical system has two exciting initiatives to measure nontraditional types of employment. First, the Census Bureau conducts the Annual Survey of Entrepreneurs (ASE), which is a survey of approximately 290,000

employer firms where roughly 47 percent of these firms are less than 10 years old. The 2015 ASE includes questions on types of workers, such as full-time employees; part-time employees; and contractors, independent contractors, or outside consultants. The 2015 ASE also includes questions regarding the types of tasks performed by each type of worker. See the text box on page 18 and Foster and Norman (2016) for additional details. These questions on types of workers and their tasks were developed with input from CES staff, an example of how the Census Bureau relies upon research to develop content.

The results from the 2015 survey should be released in summer of 2017 and will offer insights into how both young and old businesses use nontraditional modes of employment in their workforce organizational structure.

Second, the BLS will include the Contingent Worker Supplement in the May 2017 CPS. This supplement was last fielded in 2005. The questions it contains will provide information on the characteristics of workers in contingent jobs, which are defined as jobs that are structured to last only a limited period of time. The Contingent Worker Supplement will also provide information about workers in several alternative employment arrangements, including independent contractors, on-call workers, temporary help agency workers, and workers provided by contract companies. BLS is proposing to add four new questions to the end of the Contingent Worker Supplement, which will explore whether individuals

obtain customers or online tasks through companies that electronically match them, often through mobile apps, and examine whether work obtained through electronic matching platforms is a source of secondary earnings. The proposed wording of these additional questions is given in the accompanying text box on page 19.

CONCLUSIONS

The widely perceived rise of the gig economy is as yet not well understood or well measured. Gig economy workers should be classified as self-employed, but the core traditional household surveys do not show an increase in self-employment activity. There is more evidence in the administrative data of growth in the number of individuals receiving income from self-employment activity, but it is unclear to what extent this is driven by growth in gig activity as conceived in popular perception. This warrants our attention, since mismeasurement of any increase in nontraditional employment may mean that our estimates of employment growth are too low, that our estimates of aggregate productivity growth are too high, and that the pattern of productivity growth across industries has been distorted.

The current system of economic measurement is designed for a world in which work generally occurs within traditional employment relationships. For example, the government's major monthly household surveys collect information about work that individuals do for pay or profit.

Questions From the 2015 Annual Survey of Entrepreneurs on the Types and Tasks of Workers

In 2015, which of the following types of workers were used by this business? Select all that apply.

- ☐ Full-time paid employees (workers who received a W-2)
- ☐ Part-time paid employees (workers who received a W-2)
- ☐ Paid day laborers
- ☐ Temporary staffing obtained from a temporary help service
- ☐ Leased employees from a leasing service or a professional employer organization
- ☐ Contractors, subcontractors, independent contractors, or outside consultants (workers who received a 1099 or payment from another company)
- ☐ None of the above

In 2015, on average, what percent of the total number of workers was accounted for by each of the [above] types of workers?

In 2015, what types of tasks did {type of worker} perform? Select all that apply.

- ☐ Procurement, logistics, and distribution
- ☐ Operations (Primary business activities related to producing this business's goods and/or services)
- ☐ Marketing, sales, and customer accounts
- ☐ Customer and after sales service
- ☐ Product or service development
- ☐ Technology and process development
- ☐ General management and firm infrastructure
- ☐ Human resources management
- ☐ Strategic management
- ☐ None of the above

These surveys do not probe respondents to report work that they do not think of as a job, and the questions that are asked focus primarily on the main job. Other surveys that collect information from businesses ask about the number of people employed by the business, but rarely ask about the labor input of people who are not on those businesses' payrolls.

This chapter highlights the potential payoff from developing estimates based on survey and administrative data that have been integrated at the individual level. Such integration offers great potential for understanding the changing nature of work, particularly for nontraditional work activities that are inherently difficult to define and measure. This is the type of research done by staff at the Center for Economic Studies.

Additional Questions Proposed for the May 2017 Contingent Worker Supplement

I now have a few questions related to how the Internet and mobile apps have led to new types of work arrangements. I will ask first about tasks that are done in-person and then about tasks that are done entirely online.

- 1) Some people find short, IN-PERSON tasks or jobs through companies that connect them directly with customers using a website or mobile app. These companies also coordinate payment for the service through the app or website. For example, using your own car to drive people from one place to another, delivering something, or doing someone's household tasks or errands.

Does this describe ANY work (you/NAME) did LAST WEEK?

- ☐ Yes
- ☐ No

- 2) Was that for (your/NAME's) (main) job, (your/NAME's second job), or (other) additional work for pay?

- ☐ Main job
- ☐ Second job
- ☐ Additional work for pay

- 3) Some people select short, ONLINE tasks or projects through companies that maintain lists that are accessed through an app or a website. These tasks are done entirely online and the companies coordinate payment for the work. For example, data entry, translating text, web or software development, or graphic design.

Does this describe ANY work (you/NAME) did LAST WEEK?

- ☐ Yes
- ☐ No

- 4) Was that for (your/NAME's) (main) job, (your/NAME's second job), or (other) additional work for pay?

- ☐ Main job
- ☐ Second job
- ☐ Additional work for pay

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Chapter 3.

Partnering With Experts: The Federal Statistical Research Data Center Program

Barbara Downs and Shawn Klimek, Center for Economic Studies

The Federal Statistical Research Data Center (FSRDC) program enables the U.S. Census Bureau to leverage the innovative expertise of researchers throughout the United States to help improve our measures of the U.S. economy and its people. The program connects researchers to restricted-use microdata through an extensive network of secure Research Data Center (RDC) facilities housed at partnering institutions. This enables researchers to address questions that cannot be addressed using publicly available data and that benefit the Census Bureau. The vision behind this program is captured in a quote from then-Census Bureau Director Robert Groves at the Minnesota RDC grand opening in 2010:

“Statistical information is key to an informed citizenry; an informed citizenry is key to a functioning democracy. To be useful, the statistical information must be credible, nonpartisan, and relevant to key questions about the welfare of the society.”

The FSRDC program supports this vision in four important ways: first, through the increased transparency of government statistics; second, by educating future users of statistical data; third, by encouraging and facilitating continual improvements in existing data; fourth, by identifying data gaps and creating new information.

We provide in this chapter an overview of the FSRDC program, including its partnerships and data, and show how these come together to provide these four benefits. With such a large program, we are forced to pick just a few examples to illustrate each point but note other sources for those interested in further details. We close with a brief discussion of where the program is headed in the near term.

HISTORY AND GEOGRAPHIC EXPANSION

The Census Bureau’s first RDC effectively opened in 1982 with the founding of the Center for Economic Studies (CES) in the Census Bureau’s Economic Directorate. Under CES’s administration, qualified researchers

were able to access microdata in a controlled environment at the agency’s headquarters in Suitland, Maryland. The data available in the early years were primarily of the manufacturing sector.

The Census Bureau was determined to benefit from the assistance of additional researchers, including those who were unable to travel to Suitland to engage in research. Boston was and is a prime location for economic research, with many highly regarded universities and economics departments in the area, and thus the Census Bureau established a second RDC location at its Boston Regional Office in January 1994.

Importance of RDCs

In his 1991 Nobel Prize Lecture, Ronald Coase stated that “we can also hope to learn much more in the future from the studies of the activities of firms which have recently been initiated by the Center for Economic Studies of the Bureau of the Census of the United States.” Elaborating on these thoughts in a letter sent to CES following a visit there in June 1993, he wrote:

“Of course, no individual or institution can do everything. The Center [for Economic Studies] will have to depend on research conducted elsewhere (particularly in universities) . . . to develop a more complete and more accurate picture of the structure of the economy. For this reason I greatly welcome the initiative of the Bureau of the Census in establishing an office at the Center in Boston . . . and I hope, after assessing your experience in Boston, that it will be found desirable to establish similar offices in other places.”

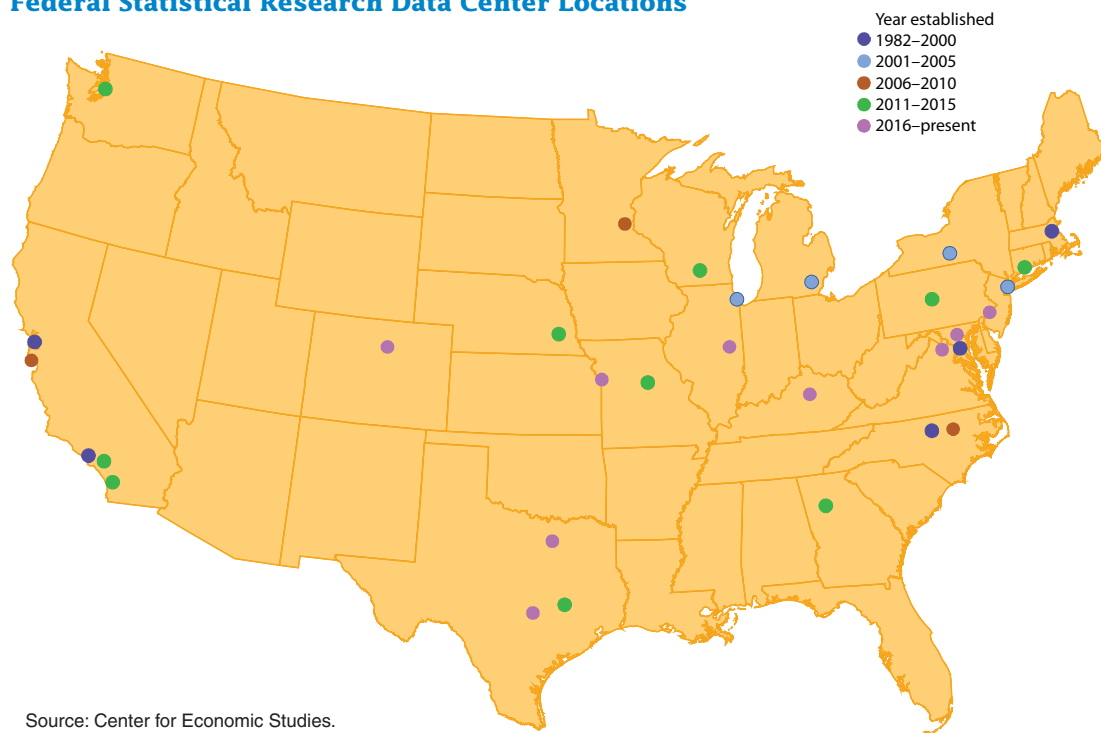
The success of the Boston RDC encouraged the opening of additional locations. By 1998, the Census Bureau had partnered with the National Science Foundation (NSF) to create what it called the Census Research Data Center program. To this day, applications for new RDC core locations are submitted to the NSF, where they are evaluated for their potential contribution to scientific research. While the NSF selects and provides initial financial support for new RDC locations, the Census Bureau manages the RDC program. A 1998 Federal Register Notice describes the program and the intent of the Census Bureau and NSF to continue to expand it in accordance with federal laws and guidelines.

Figure 3-1 depicts the growth and geographic evolution of RDC locations. By 2000, five RDC locations were in operation. As more research using the restricted-access data was published, there was ever more interest in the RDCs, leading to the opening of several more RDC locations in regions of the country with a heavy concentration of researchers focused on microeconomic analysis. Since the late 2000s, the network has expanded throughout the United States. Some of these new locations operate as satellites, or branches, of NSF-approved research data centers, providing additional RDC access for researchers affiliated with the original RDC who may find travel time and costs prohibitive.

CES operates 24 RDCs, with 7 more locations planned. Current locations are Ann Arbor, Atlanta, Berkeley, Cambridge, Chicago, College Park (MD), College Station (TX), Columbia (MO), Durham, Irvine, Ithaca (NY), Kansas City (MO), Lincoln, Los Angeles, Madison, Minneapolis, New Haven, New York, Research Triangle Park (NC), Seattle, Stanford (CA), Suitland (MD), and University Park (PA). Planned additional locations are Austin, Boulder, Dallas, Lexington, Philadelphia, Urbana (IL), and Washington (DC).

The demand for new FSRDC locations has greatly increased as the benefits of the network grow. Figure 3-2 shows the total number of PhDs granted by state in fields common to FSRDC research

Figure 3-1.
Federal Statistical Research Data Center Locations



FSRDC Security

The FSRDC program provides qualified researchers secure access to restricted-use microdata for approved statistical research purposes. Each of these secure locations, or RDCs, is a Census Bureau facility staffed by a Census Bureau employee (RDC administrator). The facilities meet all security standards, including those of the IRS, for access to restricted-use microdata. All access to microdata is under the auspices of each project's approved research proposal that benefits the Census Bureau or meets the needs of any other data-providing agency. Each proposal undergoes a

rigorous review to ensure its purpose is statistical research, the methodology is sound and feasible, and the resulting statistical output does not pose a risk of identifying an individual person or business.

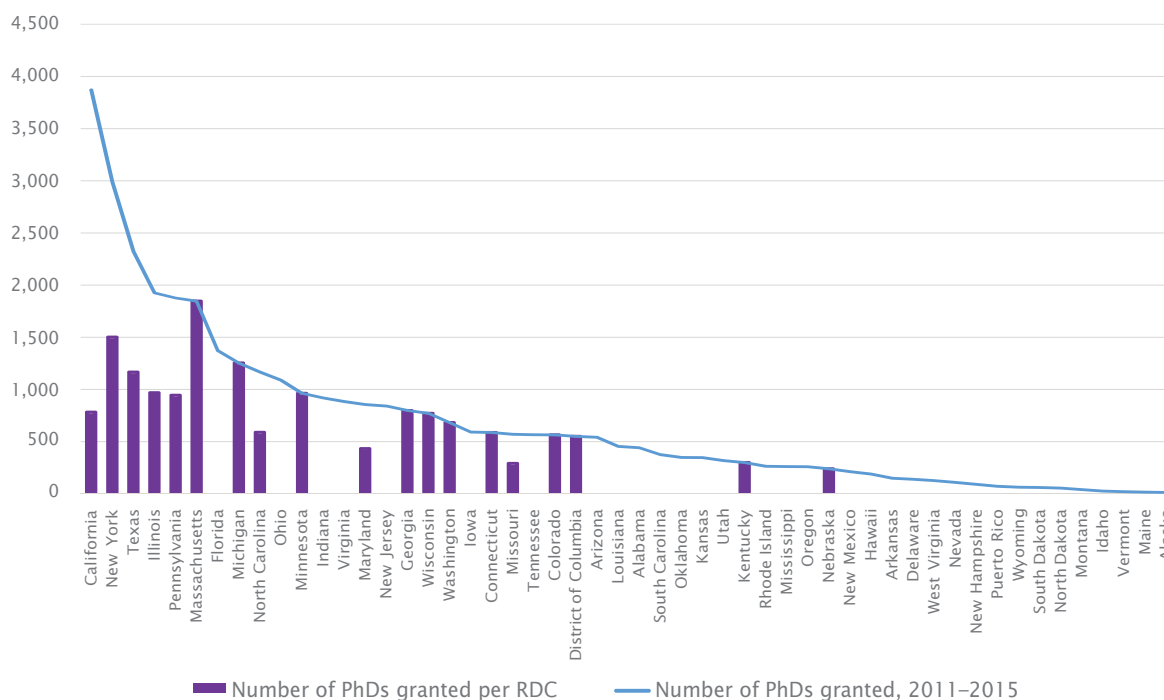
Researchers accessing an FSRDC must obtain Special Sworn Status (SSS) from the Census Bureau, which requires a moderate-level background check. SSS researchers also swear a lifetime oath to protect the confidentiality of the microdata they use in their research.

At the RDC facilities, researchers use thin client devices to access only the data approved for their project. The data are located on secure computer

servers at the Census Bureau's Computer Center in Bowie, Maryland. The RDC administrator at each RDC is responsible for the day-to-day operation of the facility and ensures all security and access policies are followed by all users. Laptop computers and other personal computer devices are not allowed in the RDCs. Before a researcher may remove any material from the RDC, the materials must be submitted, reviewed, and approved for release by the RDC administrator and a team of disclosure review experts at the Census Bureau headquarters to assure the confidentiality of individual responses.

Figure 3-2.

The Geographic Distribution of PhD Students and of Research Data Centers



Source: Center for Economic Studies and National Science Foundation.

(economics, sociology, business and management, political science and public administration, mathematics and statistics, and other life sciences). States are sorted by the number of degrees granted over the 2011–2015 period in which we have seen this increase in demand for RDC locations. The purple bars show the number of degrees granted per RDC location. Generally speaking, the geographic distribution of RDCs is consistent with this measure of demand: states with large numbers of researchers are more likely to have locations, and physically large states with large numbers of researchers tend to have more than one RDC location. However, states with a smaller number of researchers may also be awarded locations based on the high quality of their research proposals to the NSF.

VALUABLE PARTNERSHIPS

The FSRDC program is a mutually beneficial partnership between federal statistical agencies, institutional partners, and researchers. The federal statistical system is a decentralized system of agencies that collect and produce data about the people, economy, natural resources, and infrastructure of the United States. As part of their data production responsibilities, statistical agencies, including the Census Bureau, produce publicly available microdata files. When public-use microdata files cannot be produced at the level of detail required for statistical analysis, many statistical agencies also make some of their data

available for research purposes via controlled systems such as remote-access or licensing agreements, and some agencies also provide on-site secure access to restricted-use data.

Not all statistical agencies have the resources necessary to create systems of research data centers. They can however leverage the existing FSRDC program to supplement their restricted-access research programs. This increases their ability to disseminate microdata to a large audience without incurring the costs associated with managing a nationwide RDC infrastructure. Current federal statistical agency partners include the National Center for Health Statistics (NCHS), the Bureau of Labor Statistics (BLS), and the Agency for Healthcare Research and Quality (AHRQ).

Our institutional partners—universities, Federal Reserve banks, and other research institutions—support each RDC location. These institutional partners (see Appendix 6) work with the Census Bureau to manage the local RDC, facilitate research that benefits the Census Bureau, engage their local research community, and provide insights into the data and technical needs of researchers. FSRDC research not only improves Census Bureau data collection and processing, it increases research institutions' standing in academia and among policymakers.

For example, researchers affiliated with the Integrated Public Use Microdata Series (IPUMS) project used the Minnesota RDC to help the Census Bureau build new internal and public data

Graduate Students and the CES Dissertation Mentorship Program

Over the years, RDCs have been home to hundreds of graduate students serving as research assistants to academic faculty. Graduate students have also used the FSRDC program for their very own research, as a vital input into their PhD dissertations. At present, the FSRDCs have 109 such PhD students, representing 40 different universities, including 84 who use Census microdata in their dissertations.

Many of these doctoral candidates are eligible to apply to the CES Dissertation Mentorship Program, which offers mentoring by a CES staff economist, who advises the student on the use of Census Bureau microdata, as well as a visit to CES to meet with staff economists and present research in progress. To date, the program has mentored 34 students from 18 different universities, employing 26 different mentors.

Graduate students often continue to conduct research in the FSRDCs after they start their careers—passing on their knowledge to other researchers, including their own graduate students.

Institutional Partners on the FSRDC Program

"The FSRDC network is a critical collaboration between the Census Bureau and the research community. It allows the Census Bureau to tap into the energy and ideas and skills of researchers to tackle both new areas of measurement and methodological challenges that the Census Bureau faces. The research community benefits from their greater understanding of the needs and opportunities in the federal statistical system. Collaborations between University of Michigan researchers and the Census Bureau have broadened the use of Census Bureau measures of poverty to Michigan-based surveys and improved estimates of the impact of poverty-reduction programs, improved the understanding of business ownership structure internally within the Census Bureau, and are currently using information about businesses who employ older workers to better understand the opportunities for working longer."

Maggie Levenstein, Executive Director,
Michigan Research Data Center

"It has been clear to me for many years that the FSRDC program is key to the advancement of empirical social science in academia. Senior faculty with established academic records are deeply involved in using and improving federal microdata to advance knowledge; graduate students and junior faculty find this rich data source instrumental in a sustainable career answering deep, important questions in their respective fields; university administrators recognize, like physical science laboratories, the FSRDC program is the critical research infrastructure in social sciences needed to retain and recruit the faculty that will advance academic discovery in a growing range of disciplines."

Gale A. Boyd, Executive Director,
Triangle Research Data Center

products in support of its decennial census program. IPUMS staff at the University of Minnesota collaborated with Census Bureau staff to restore millions of missing records to the internal 1960 Decennial Census microdata file. The restored file is now being used by researchers in the FSRDC network, and an associated public use microdata sample was recently released publicly on the IPUMS Web site. In this way, contributions of Minnesota RDC researchers enhanced both the IPUMS program and the Census Bureau data holdings. Our institutional partners also utilize the FSRDC program to train graduate student research assistants in the use of complex microdata for

social science research, which improves their ability to recruit and retain high-caliber students and faculty.

The final part of the FSRDC partnership is the researchers who contribute to improvements in the Census Bureau's survey and data collection programs. The federal statistical system is a key source of the large-scale survey and administrative data that researchers rely on in order to study economic, social, health, and policy questions. The FSRDC program makes it possible for researchers to use this important data to advance scientific knowledge. Many FSRDC research projects result in highly

publicized findings relevant to understanding the economy or determining the impact of federal programs on human behavior. The text box on page 26 highlights the research of three current FSRDC researchers. Each research team's work has helped the Census Bureau to improve or better understand how the data it collects can be used in support of the federal statistical system's mission. The feedback loop between research, data collection, and measurement continuously improves our understanding of the U.S. economy and people, and provides leaders and policymakers relevant information.

Researchers on the Value of Census Data

"My 10 years of research using Census Bureau data through the FSRDC program focuses on evaluating the shorter- and longer-term effects of Great Society programs. Some of my most recent research uses the 2000 Census and American Community Surveys linked to the Social Security Administration's NUMIDENT file, which enhances Census Bureau data by creating and validating information on location of birth in the NUMIDENT and linking this to the U.S. Geological Surveys' Geographic Names Information System. My recent research results have been included in a coedited book entitled Legacies of the War on Poverty, the American Economic Review, and the Journal of Economic History."

Martha Bailey is a professor of economics and a research professor at the Population Studies Center at the University of Michigan and a faculty research fellow at the National Bureau of Economic Research, IZA, and CESifo.

Bailey, Martha J., and Sheldon Danziger, *Legacies of the War on Poverty*, New York: Russell Sage Foundation, 2013.

"The research on Census Bureau data sets developed by the Center for Economic Studies has revolutionized the field of economics. These data sets have become the gold standard for studying business behavior for broad sectors of the economy. I had my first chance to work on a CES project almost 30 years ago, on a study of small business dynamics. A more recent project examined how imports affect the manufacturing sector, and I am currently working on a project titled 'Trade Flows at Narrow Geographic Detail and the Location of Manufacturing.' The opportunity to work on various projects over the years with this fantastic data has had a huge impact on my career."

Tom Holmes is the Curtis L. Carlson Professor of Economics at the University of Minnesota and a consultant to the Federal Reserve Bank of Minneapolis.

Holmes, Thomas J., and James A. Schmitz, Jr., "On the Turnover of Business Firms and Business Managers," *Journal of Political Economy*, 1995, 103:1005–1038.

Holmes, Thomas J. "The Location of Sales Offices and the Attraction of Cities," *Journal of Political Economy*, 2005, 113:551–581.

Holmes, Thomas J., and John J. Stevens, "An Alternative Theory of the Plant Size Distribution, with Geography and Intra- and International Trade," *Journal of Political Economy*, 2014, 122:369–421.

"Our project uses the new Management and Organizational Practices Survey (MOPS), which has collected innovative new data on management, organization, IT and expectations data on around 35,000 manufacturing plants in 2010 and 2015. The first project using this data is looking at a couple of questions. First, what is the impact of structured management practices on firm and plant performance. Our initial results (Bloom et al. 2017) suggest management variations explain about 20% of TFP spread, a similar amount to R&D, IT and Skills. This suggests that indeed "management matters" as business people and entrepreneurs have long been arguing. Second, we are examining what explains the large variations in management practices we see across plants and firms. This work has already attracted a range of business and media interest, and I look forward to continuing to work with the Census Bureau to analyze management and organizational practices."

Nicholas Bloom is the William Eberle Professor of Economics at Stanford University, a senior fellow of SIEPR, and the codirector of the Productivity, Innovation, and Entrepreneurship program at the National Bureau of Economic Research.

Bloom, Nicholas, Eric Brynjolfsson, Lucia Foster, Ron Jarmin, Megha Patnaik, Itay Saporta-Eksten, and John Van Reenen, "What Drives Differences in Management?" Center for Economic Studies Discussion Paper, 2017, 17–32.

AVAILABLE DATA

Over the years, data available via the FSRDC program have expanded beyond Census Bureau surveys measuring the manufacturing sector. The Census Bureau now makes most of its business data available for FSRDC research projects, including the full, quinquennial Economic Census, which covers most sectors of the economy. These business data consist of both collected data (surveys and censuses) and curated data (administrative data) and are not available in a public use format. In order to conduct detailed analysis of the relationships between business characteristics and economic outcomes, researchers must use the restricted-use data available through the FSRDCs.

In addition to collected and curated data, the Census Bureau produces additional information by combining multiple sources (or years) of data into new microdata files. For example, the Longitudinal Business Database (LBD) is a research data set constructed at CES that contains basic information on the universe of all U.S. business establishments with paid employees, beginning in 1976. The LBD can be used to examine entry and exit, gross job flows, and changes in the structure of the U.S. economy, and it can be linked to other Census Bureau surveys at the establishment and firm level.

Longitudinal Employer–Household Dynamics (LEHD) data are the result of a partnership between the Census Bureau and U.S. states to provide high-quality local labor market information and to improve the Census Bureau's

economic and demographic data programs. LEHD data are based on different administrative sources, primarily unemployment insurance (UI) earnings data and the Quarterly Census of Employment and Wages (QCEW), as well as censuses and surveys. Firm and worker information are combined to create job-level quarterly earnings history data, data on where workers live and work, and data on firm characteristics, such as industry. FSRDC research projects use this data for myriad purposes, to shed light on the U.S. economy and its workers.

In terms of person- or household-level microdata, the Census Bureau and many other federal statistical agencies do produce public use versions. For instance, the Census Bureau's Decennial Census and American Community Survey programs both release public use microdata sample (PUMS) data sets containing detailed records of individual responses to the surveys. To protect privacy, PUMS files are available only with limited geographic detail and some variables have also been recoded to prevent the identification of unusual cases. The research files available via the FSRDC program include detailed measures of geography and other variables.

The Census Bureau is not the only federal statistical agency to manage a restricted-access microdata program. Several other agencies provide controlled access to microdata through a variety of mechanisms, including RDCs, licensing agreements, or remote access through secure servers. In the mid-2000s, NCHS and AHRQ began partnering with the Census

Bureau to leverage the Census Bureau's RDC program, to supplement the remote locations available via their own RDC programs. BLS joined the FSRDC program in 2016 and plans to expand the number of data sets it makes available to researcher outside its headquarters in Washington, D.C. Researchers wishing to use restricted-use microdata from these agencies, upon approval from the respective data-owning agency, may now conduct their research at any of the FSRDC locations. By 2016, NCHS and AHRQ projects made up about half of all active RDC projects.

Researchers may find the FSRDC Web site a useful and regularly updated source of detailed information about the data available for use by FSRDC researchers and the process by which researchers submit project proposals. The Web site, <www.census.gov/fsrdc>, also includes contact information for the Census Bureau employee at each RDC facility.

BENEFITS

As we noted at the start of this chapter, the FSRDC program provides four important benefits to the Census Bureau: (1) increasing transparency of government statistics; (2) educating future users of statistical data; (3) encouraging and facilitating continual improvements in existing data; and (4) identifying data gaps and creating new information.

The FSRDC program increases government transparency by enabling controlled access to data collected to measure characteristics of the U.S. population and economy. Through the

dissemination of papers and presentations from this research, the FSRDC program helps demonstrate the value and usefulness of Census Bureau products. In addition to the CES Discussion Paper Series, CES helps to disseminate the results of this research through this annual report. In addition, the FSRDC program encourages researchers to participate in the Center for Economic Studies Seminar Series. Throughout 2016, researchers from nearly a dozen

universities presented findings from their RDC research in these seminars.

The FSRDC program also has an important educational function to train users of Census Bureau data. RDC researchers regularly include advanced graduate students as research assistants. As these experienced users of the microdata begin academic careers of their own, they frequently continue their fruitful and mutu-

ally beneficial research. Each year FSRDC researchers, institutional partners, and federal statistical agencies gather for an annual meeting and research conference. The annual conference, rotated among partnering institutions, provides an opportunity for program partners to strengthen relationships, share knowledge, engage potential program participants from universities across the United States and plan for future program changes.

Researchers on the Merits of NCHS Data

"Our research studies the willingness-to-pay for air quality. In many settings, researchers estimate the demand for safety, education, or clean air by looking at how these goods and services affect variables that enter the utility function directly, like mortality. Our research compares the importance of these traditional outcomes against the importance of investments that people make to protect or defend themselves against negative externalities. Defensive investments are widely believed to be an important component of the willingness-to-pay to avoid negative externalities, but are typically difficult to measure.

We study a cap-and-trade market for air pollution, which dramatically improved air quality in the Eastern U.S. Using NCHS data analyzed in an FSRDC, we find that this market significantly decreased mortality rates, especially for the elderly. In other analysis, we find that this market significantly decreased medication purchases, which is one measure of defensive investments. We find that willingness-to-pay for the improvement in air quality was substantially larger than an upper-bound estimate of the market's cost.

We conducted the analysis with NCHS data over several years across three different RDC locations. Both FSRDC and NCHS staff gave advice on effectively preparing the project proposals and managing the workflow. The analysis required bringing into the RDC publicly available data

on pollution, weather, and other variables. The research process was smooth and facilitated efficient writing and revising of the paper."

Joseph Shapiro is an assistant professor of economics at Yale University.

Deschenes, Olivier, Michael Greenstone, and Joseph S. Shapiro, "Defensive Investments and the Demand for Air Quality: Evidence from the NOx Budget Program," NBER Working Paper No. 18267, 2012.

"My research uses data science to explore patient-centered questions in sepsis and acute respiratory distress syndrome. I am now drafting a manuscript from the results of my current project at the Atlanta FSRDC which uses survey data from the National Health Interview Survey linked with mortality outcomes in the National Death Index to explore the risk factors for racial disparities in sepsis-related deaths. FSRDCs offer an amazing opportunity to access these restricted, high-quality data sources to do this work. I elected to use the Atlanta FSRDC for this current project for its impressive computer lab and proximity to my office, which allowed me to do this work while maintaining my other academic and clinical responsibilities."

Jordan Kempker, MD, MsC, is an assistant professor in the Division of Pulmonary, Allergy, Critical Care and Sleep Medicine at Emory University.

The third and fourth benefits relate to improvements to the information that the Census Bureau provides. The Census Bureau is authorized to make its data available via the FSRDC program under Title 13, U.S. Code. This title requires all use of Census Bureau microdata to be in service of the needs of the agency's data collection and processing programs. Each FSRDC project proposal is evaluated for its need for restricted-use microdata, feasibility, and potential to benefit Census Bureau programs. In terms of existing data, benefits have ranged from suggestions of improvements to survey collection, to content enhancements and innovative uses of existing data. In terms of developing new data, this benefit comes from combining data sets and sometimes even suggesting entirely new surveys. We provide a few examples of these below.

As an early example of innovative use of *existing* data, Davis and Haltiwanger (1990) developed gross job flows statistics that helped change our understanding of labor markets. Peter Diamond cited their work in his Nobel Prize Lecture (Diamond 2010). The initial version of these statistics using Census Bureau data were made available to the public through Haltiwanger's Web site and now form the backbone of the Business Dynamics Statistics (BDS). This work (with various coauthors) has since expanded to use labor market measures from both the Census Bureau and the BLS.

As examples of combining data to create new insights, two

important enhancements to the BDS build upon pathbreaking work of RDC researchers enhancing the LBD with administrative data. First, a number of research teams in the FSRDC system linked Census Bureau business microdata to patent data. Kerr and Fu (2008) and Balasubramanian and Sivadasan (2011) linked patent assignees to the Census Bureau's firm-level data to study outcomes such as employment growth and capital intensity and the relationship between patenting and R&D expenditures. The BDS-Patenting Firms project builds upon this work by leveraging additional linkages between patent inventors and the Census Bureau data on people and jobs (Graham et al. 2015). The data infrastructure built as part of this project will be made available to researchers with approved projects, thus enabling the cycle of iterative learning to continue. In addition, the project will produce public use products that describe the employment dynamics of patenting firms.

Second, the BDS-Exporting Firms project builds upon the work of Bernard, Jensen, and Schott, linking import and export transactions to the Business Register (Bernard et al. 2009). As in the example above, CES is making the linked firm trade transactions data available to researchers in the FSRDCs (Barresse et al. 2016). These early efforts by FSRDC researchers have proven so valuable to the research community that the products are now part of the fabric of the work at CES.

Empirical analyses conducted in the FSRDCs by researchers from the Agency for Healthcare

Research and Quality (AHRQ), the sponsor of the Medical Expenditure Panel Survey-Insurance Component (MEPS-IC), have helped to improve these data on employer-sponsored health insurance collected by the Census Bureau. For example, while studying the availability and marginal costs associated with dependent health insurance coverage, AHRQ researchers recognized the need to revise edit bounds set for the MEPS-IC plan-level data. Together the Census Bureau and AHRQ finalized these edit bounds and improved the survey data to reflect changes in the insurance markets, such as the growth in high-deductible health plans and rising premium costs.

FSRDC research also supports the expansion of the Census Bureau's data collection programs. Two relatively new Census Bureau business surveys trace their beginnings to innovative research in the FSRDC network. The Management and Organizational Practices Survey (MOPS) and the Annual Survey of Entrepreneurs (ASE) were both proposed to the Census Bureau by researchers who had in depth knowledge of Census Bureau products based upon their experiences in RDCs. Undertaking both surveys involved partnerships between the Census Bureau, the researchers, and many institutions supporting these efforts.

LOOKING FORWARD

In 2015, the Interagency Council on Statistical Policy, comprised of heads of the principal statistical agencies and led by the Chief Statistician of United States, supported the Census Bureau in its

Importance of FSRDCs

"The Research Data Center network is now an integral part of the Census Bureau's dissemination of statistical information. As a former Executive Director of the Cornell RDC, and a collaborator with many RDC-based research teams, I feel strongly that the RDC network provides an essential tool in modern empirical social science. But I am most pleased with the Census Bureau's acknowledgement of how important RDC-based research is to our core mission. The oldest official data stewardship policy at the Bureau, DS001, states 'The Census Bureau recognizes that Title 13 benefits are not fully realized until the research has been reviewed and published. The integrity of research done under Census Bureau auspices depends upon the confidence of the scientific community in our adherence to the principle of peer review. Every effort should be made to allow for timely response to peer review, consistent with the requirements of Title 13 and agreements with external data providers.' The path-breaking work done in RDCs is vital to the Bureau's mission. Its acceptance in scientific journals is crucial to our commitment to maintain the highest standards of reproducible research as the foundation of our statistical products."

John Abowd,
Associate Director for Research and Methodology,
U.S. Census Bureau

effort to rebrand the Census RDCs as the Federal Statistical Research Data Centers. This rebranding reflects not only the increasing RDC participation by federal statistical agencies but also the statistical nature of research conducted via the program. All participating agencies utilize the FSRDC program as a means of providing secure access to researchers who conduct statistical analysis of data in support of their agency missions.



The participation of multiple federal statistical agencies in the FSRDC program increases the ability of researchers to study and provide information about the U.S. society and economy. Leveraging the existing broad FSRDC infrastructure also reduces data provision costs for each participating agency. Combining resources to increase the utility of the RDCs to meet multiple agency demands contributes to a strong and stable FSRDC program.

One goal of the FSRDC program is to harmonize practices and policies across participating agencies to ensure all researchers' FSRDC experiences are similar as much

as possible. After participating agencies review and approve the use of their restricted-access microdata, researchers follow a single path for access to the FSRDC facility.

While current FSRDC projects use data from only a single agency, the FSRDC program is developing procedures to allow future projects to include data from multiple statistical agencies where possible. Together, the collected data can be harnessed for common good, enabling researchers to answer questions that cannot be addressed by data from one agency alone. These projects are an ideal method for addressing complex research questions without adding the cost of additional data collections.

From NCHS

"Watching the FSRDCs move from a Census service to a collaboration between multiple federal agencies, institutional partners, and the greater research community has been great. Being a part of the change is even better. The access to health data made possible by this collaboration has made our mission to inform the nation easier and more effective than we thought possible a decade ago."

Peter Meyer,
Assistant Director, Office of
Research and Methodology,
and Director, Research Data
Center, National Center for
Health Statistics

From BLS

"Making our underlying data more accessible for researchers from coast to coast is a huge step forward, and I hope it will lead to a surge in research using BLS data. I believe that having more researchers use BLS data not only will showcase new uses of the data but improve our products by encouraging researchers from BLS and other organizations to collaborate. It also supports transparency because external researchers can analyze inputs to our published statistics."

Erica Groshen,
Commissioner,
U.S. Bureau of Labor
Statistics
October 18, 2016, blog



Replication and Reproducibility

A hallmark of scientific research is the ability to reproduce and replicate the findings of a rigorous, purposeful, and precise analysis. Access to data is essential to reproduce findings and replicate the relationships between measures that are found in the course of analysis. The secure restricted-access nature of the FSRDC has sometimes been considered a barrier to these activities. A new proposal led by researchers affiliated with the Cornell University RDC aims to create a system to facilitate the replication of FSRDC research findings. This effort will improve documentation of all phases of FSRDC research, to provide future researchers a complete set of information necessary in order to reproduce and replicate an earlier project's findings. The improved documentation is focused on packaging together the complete set of metadata, including software code and the Digital Object Identifier for each data set, associated with each FSRDC project. A streamlined proposal submission and review process for replication projects may facilitate the reproduction and replication of FSRDC projects and would also increase the opportunities for faculty advisors to use the FSRDC program to train student researchers in the rigorous methods needed to analyze complex data collected by federal statistical agencies.

A second goal of the FSRDC program is to be responsive to changes in technology. The FSRDC system is a mode of access. Currently the main mode of access is at physical locations, but the system can support other modes of access. As the federal statistical system adopts other modes of access, the FSRDC system will work hard to accommodate these changing needs.

As the FSRDC program expands, we are proud that what began as a single data center within the Census Bureau has, over the past three decades, grown into a federal resource to improve efficiency in the federal statistical system, helping its agencies to achieve their missions to collect, produce, and release information to improve our understanding of an increasingly complex world.

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Appendix 1.

OVERVIEW OF THE CENTER FOR ECONOMIC STUDIES

The Center for Economic Studies (CES) partners with stakeholders within and outside the Census Bureau to improve measures of the economy and people of the United States through research and the development of innovative information products.

RESEARCH

CES research staff use confidential microdata from Census Bureau censuses and surveys of business and households, linked employer-employee data, and administrative records from federal and state agencies to carry out empirical research that leads to:

- Discoveries in economics and other social sciences not possible using publicly available data.
- Enhancements to research microdata for future researchers.
- Improvements in existing Census Bureau surveys and data products.
- New statistics and information products for public use.

Research findings are disseminated through publications (see Appendix 2), CES discussion papers (see Appendix 4), conferences and seminars, and this annual report.

PRODUCTS

CES uses microdata from existing censuses and surveys, and from administrative sources, to create innovative public-use information products, including:

- *Business Dynamics Statistics (BDS)*. Tabulations on establishments, firms, and employment with unique information on firm age and firm size.
- *Job-to-Job Flows (J2J)*. Statistics on worker reallocation, including job change, hires and separations from and to nonemployment, and characteristics of origin and destination jobs.
- *OnTheMap*. Online mapping and reporting application showing where the U.S. population and workforce live and work.
- *OnTheMap for Emergency Management*. Intuitive Web-based interface for accessing U.S. population and workforce statistics, in real time, for areas being affected by natural disasters.
- *Quarterly Workforce Indicators (QWI)*. Workforce statistics by demography, geography, and industry for each state.
- *Synthetic Longitudinal Business Database (SynLBD)*. Beta version of synthetic microdata on all U.S. establishments.

FEDERAL STATISTICAL RESEARCH DATA CENTERS (FSRDCs)

CES administers the Federal Statistical Research Data Centers (RDCs), which are Census Bureau facilities that provide secure access to restricted-use microdata for statistical purposes. Qualified researchers with approved projects can conduct research at RDCs that benefit the Census Bureau (when using Census Bureau microdata) by improving measures of the economy and people of the United States. Research conducted at the RDCs spans a variety of topics, and results from this research are regularly published in major peer-reviewed journals (see Appendix 2).

Through partnerships with leading universities and research organizations and other federal statistical agencies (see Appendix 6), CES currently operates 24 Research Data Centers, which are located in Ann Arbor, Atlanta, Berkeley, Cambridge, Chicago, College Park (MD), College Station (TX), Columbia (MO), Durham, Irvine, Ithaca (NY), Kansas City (MO), Lincoln, Los Angeles, Madison, Minneapolis, New Haven,

FEDERAL STATISTICAL RESEARCH DATA CENTERS (FSRDCs)—Con.

New York, Research Triangle Park (NC), Seattle, Stanford (CA), Suitland (MD), and University Park (PA), with more being planned for Austin, Boulder, Lexington, Philadelphia, Urbana (IL), and Washington, D.C.

Research proposals submitted to CES to use Census Bureau microdata are evaluated for:

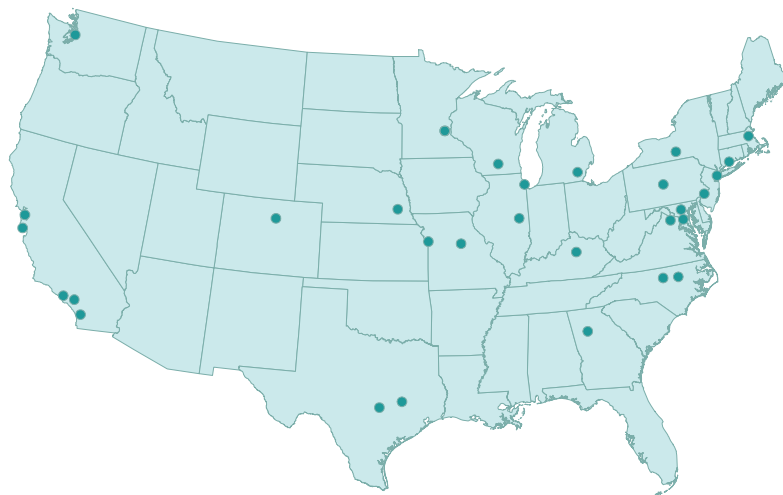
- Potential benefits to Census Bureau programs.
- Scientific merit.
- Clear need for nonpublic data.
- Feasibility given the data.
- Risk of disclosure.

Proposals meeting these standards are further reviewed by the Census

Bureau's Office of Analysis and Executive Support. Proposals may also require the approval of other data-providing entities. Abstracts of recently approved projects appear in Appendix 3-A.

All RDC researchers must become Special Sworn Status (SSS) employees of the Census Bureau—passing a background check and swearing for life to protect the confidentiality of the data they access. Failing to protect confidentiality subjects them to significant financial and legal penalties.

Selected restricted-access data from the Agency for Healthcare Research and Quality (AHRQ), Bureau of Labor Statistics (BLS), and National Center for Health Statistics (NCHS) can also currently be accessed in the RDCs. Proposals to use those data must meet the requirements of those agencies. Abstracts of recently approved AHRQ and NCHS projects appear in Appendix 3-B.



PARTNERSHIPS

CES relies on many supporters and partners within and outside the Census Bureau, including:

- Census Bureau divisions that collect, process, and produce the business and household data. These areas provide CES with:
 - o The latest census and survey microdata, which are at the foundation of the research files CES makes available (see Appendix 5 for new data releases).
 - o Expert knowledge of the methodologies underlying the microdata.
 - o Occasional reviews of RDC research proposals.
- The universities, research organizations, and federal statistical agencies that support the Federal Statistical Research Data Centers operated by CES (see Appendix 6).
- The National Science Foundation, which supports the establishment of new RDCs.
- The members of the Local Employment Dynamics (LED) partnership (see Appendix 7), who provide employment and earnings data to CES that serve as the foundation for Longitudinal Employer-Household Dynamics (LEHD) research microdata and a number of public-use data products, including *Job-to-Job Flows*, *OnTheMap*, and the *Quarterly Workforce Indicators*.
- Census Bureau divisions that provide administrative and technical support, especially our colleagues in the Economic Directorate and the Research and Methodology Directorate.

Appendix 2.

CENTER FOR ECONOMIC STUDIES (CES) STAFF AND RESEARCH DATA CENTER (RDC) SELECTED PUBLICATIONS AND WORKING PAPERS: 2016

[Term inside brackets indicates work by CES staff or RDC researchers.]

PUBLICATIONS

- Abowd, John M., and Kevin L. McKinney, "Noise Infusion as a Confidentiality Protection Measure for Graph-Based Statistics," *Journal of the International Association for Official Statistics*, forthcoming, 32:127–135. [CES]
- Abowd, John M., Kevin L. McKinney, and Nellie Zhao, "Earnings Inequality Trends in the United States: Nationally Representative Estimates from Longitudinally Linked Employer-Employee Data," In *Firms and the Distribution of Income: The Roles of Productivity and Luck*, edited by Edward Lazear and Kathryn Shaw, University of Chicago Press, forthcoming. [CES]
- Abraham, Jean M., Roger Feldman, and Peter Graven, "Employers' Changing Economic Incentives to Offer Health Insurance under the Affordable Care Act," *American Journal of Health Economics*, 2016, 2(3):273–299. [RDC]
- Abraham, Jean, Anne B. Royalty, and Coleman Drake, "Employer-Sponsored Insurance Offers: Largely Stable in 2014 Following ACA Implementation," *Health Affairs*, forthcoming. [RDC]
- Abraham, Katharine G., John Haltiwanger, Kristin Sandusky, and James R. Spletzer, "The Consequences of Long Term Unemployment: Evidence from Matched Employer-Employee Data," *Industrial and Labor Relations Review*, forthcoming. [CES]
- Acemoglu, Daron, Ufuk Akcigit, Douglas Hanley, and William Kerr, "Transition to Clean Technology," *Journal of Political Economy*, 2016, 124:52–104. [RDC]
- Agarwal, Rajshree, Benjamin Campbell, April Franco, and Martin Ganco, "What Do I Take With Me? The Mediating Effect of Spin-Out Team Size and Tenure on the Founder-Firm Performance Relationship," *Academy of Management Journal*, 2016, 59:1060–1087. [RDC]
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Appendix 3-A.

ABSTRACTS OF PROJECTS STARTED IN 2016: U.S. CENSUS BUREAU DATA

Projects in this portion of the appendix use data provided by the Census Bureau.

DEMAND AND SUPPLY FACTORS IN FIRM DYNAMICS

Pablo Fajgelbaum – University of California, Los Angeles

Teresa Fort – Dartmouth College

Hugo Hopenhayn – University of California, Los Angeles

Rongzhang Wang – University of California, Los Angeles

It is well established that most entering firms start small and take time to grow. However, less is known about the process of firm growth. This project attempts to understand the determinants of firm growth by identifying demand shocks separately from supply-side factors. Understanding the process of firm growth is important since it has a large effect on the allocation of resources across firms, and hence in the extent

of allocative efficiency, which previous research suggests can explain a substantial portion of observed differences in output per worker across countries. The goal of this project is to understand the dynamics of firms by exploring alternative mechanisms of firm growth that do not depend solely on supply-side factors and to assess their quantitative relevance. To assess the contribution of demand side factors to firm growth, this

project hopes to identify shocks that make it easier for a firm to sell to customers, relaxing the demand-side constraint to growth. The primary strategy for identifying demand shocks is to exploit variation in “customer access” across time, geographic space, and product lines. For instance, a firm that is exogenously assigned better access to customers should grow faster, if access to customers were a relevant constraint to growth.

ESTIMATING THE DETERMINANTS OF PRIVATE SCHOOL ENROLLMENT: THE ROLE OF SCHOOL ATTENDANCE ZONE RACIAL AND ETHNIC COMPOSITION

Chia-Hua Lin – Cornell University

Melissa McInerney – Tufts University

Public schools are more racially segregated than the school attendance areas to which they supply services. Individual choice for private schools may play a substantial role in contributing to public school segregation, beyond what it would be if all students enrolled in the public school that served their residential area. One of three basic factors likely drives private school enrollment rates. First, children from one racial group, particularly white children, may be more likely to enroll in a private school as shares of non-white students in their school catchment areas

increases. Second, members of all racial groups are less likely to enroll in private schools as shares of children in their catchment area who are of their same race increases. A third view is that race is inconsequential in driving private school enrollment. These competing models will be assessed by integrating three data sources: restricted-access American Community Survey (ACS) 5-year period estimates for 2005–2009, the School Attendance Boundary Information System (SABINS), which contains geography delineating school catchment areas for thousands

of such areas for the 2009–2010 school year, and the Common Core of Data, which describes the characteristics of children who are enrolled in all public schools throughout the United States. Analyses of these three data sets will result in models estimating the probability that a child is enrolled in private school based on their race and the racial composition of the school catchment area in which they live, while holding constant a battery of family, attendance area, and school characteristics.

ANALYSIS AND REPORT ON INDIVIDUALS WHO ARE ELIGIBLE FOR BUT NOT ENROLLED IN THE MEDICARE SAVINGS PROGRAMS

Kyle Caswell – The Urban Institute

Medicare Savings Programs (MSP) provide financial assistance to participants for Medicare premiums and, in some cases, required cost sharing for medical services covered by Medicare. However, the rate of participation in these programs, as well as the individual characteristics associated with participation, is not well understood. This is in part because household surveys administered

by the Census Bureau and other entities do not collect information on MSP participation, and administrative sources that identify MSP enrollment clearly exclude those eligible but not enrolled. This research attempts to fill this gap in data collection by using the Survey of Income and Program Participation (SIPP) linked with administrative data from the Center for Medicare and Medicaid Services (CMS).

The administrative data will serve as the means to identify MSP enrollees among SIPP respondents, while the SIPP will identify the MSP eligible population using survey data on income, assets, and state of residence. Using these linked data, this work will study participation in the MSP programs and factors that influence participation.

DETERMINANTS OF MARRIAGE, FERTILITY, AND MIGRATION DECISIONS

Joelle Abramowitz – University of Michigan

Marriage, fertility, and migration behavior have been the subject of extensive research across many academic disciplines. Considerable work has been devoted to investigating why, whether, and when people decide to marry, have children, and change residences, whether particular programs or factors influence these decisions, and how these choices in turn affect other life decisions. This project

considers determinants of these outcomes and evaluates the data used in such analyses. To these ends, this project considers the extent to which empirical analyses using the American Community Survey (ACS) marital history and marital status questions yield comparable or divergent results. The researcher considers determinants of marriage decisions, on their own and in conjunction with fertility

and migration decisions, and examines the role of various legal changes and natural experiments occurring between 2008 and 2015. The project will also assess the benefit of the ACS marital history questions, which have been considered for removal in recent years and may again be considered for removal or revision in the future.

THE EFFECTS OF LABOR MOBILITY ON FIRM CAPITAL STRUCTURE

Jonathan Cohn – University of Texas

Avishai Schiff – University of Texas

This research explores the effects of labor mobility on firms' financial decisions. More mobile workers are better insured against involuntary separation risk wrought by higher leverage and thus can accommodate higher debt levels. However, unlike physical capital, a firm does not own its

employees' human capital. Thus, when a firm exhibits poor performance, mobile workers are more likely to voluntarily leave than to accept lower wages. This voluntary separation risk induces a higher degree of operational leverage (fixed cost of operation) which may then crowd out financial leverage

and lead to lower debt levels at firms with more mobile labor forces. The goal of this study is to use local labor market conditions and regulatory shocks to employees' abilities to switch firms to disentangle and separately measure these two opposite effects.

THE INCIDENCE OF A LOCAL LABOR DEMAND SHOCK WITH ONE-SIDED MIGRATION: AMERICAN INDIAN-OWNED CASINO GAMING

Seth Sanders – Duke University

Laurel Wheeler – Duke University

This research will use the unique nature of American Indian reservations, which constitute clearly defined local labor markets, to produce estimates describing how labor markets, housing markets, and migration respond to labor demand shocks in the context of limited in-migration. Labor demand shocks in the context of this study will be the opening of various American

Indian-owned casino gaming operations on reservations over the past 35 years across the United States. Restricted-access American Community Survey (ACS) and Decennial Census data are used to test a model of spatial equilibrium with one-sided migration. The estimates will provide evidence on whether place-based development interventions can be

effective in economically lagging localities, as well as the extent to which such interventions impose unanticipated externalities (positive or negative) on the surrounding economy. This research will also examine the fluidity of racial identification among American Indian and Alaska Native (AIAN) populations.

STRUCTURAL TRANSFORMATION AND THE END OF U.S. REGIONAL CONVERGENCE

Gabriel Unger – Harvard University

This project investigates the impact of structural transformation on the process of regional economic convergence. An earlier literature documented strong evidence of regional convergence of incomes per capita throughout the United States up until the 1980s. That is, workers in poorer states were catching up to workers in the richer states, just as simple neoclassical growth models would predict. But, over the past 30 years,

regional convergence amongst the U.S. states has dramatically diminished, presenting a puzzle for macroeconomists. Structural transformation, defined as both employment shifts between sectors and as the transformation of the production technology of any given sector may be a major cause of this convergence slowdown. This project estimates speeds of convergence for different sectors at new, more precise levels of geographic

and industrial disaggregation as well as estimates the potential determinants of convergence speed, such as education, capital-intensity, technology, trade exposure, legal organization, R&D, and so on. These new empirical results will reveal whether and how different kinds of structural transformation might slow down the convergence process.

HOW DOES MARKET ACCESS AFFECT ENTREPRENEURSHIP AND INNOVATION?

Abdullah Al Mahmud – Brandeis University

Brendan Casey – Clark University

Wayne Gray – Clark University

Sari Kerr – Wellesley College

William Kerr – Harvard Business School

Karthik Krishnan – Northeastern University

Jean Claude Makolo – Brandeis University

Debarshi Nandy – Brandeis University

This project exploits the exogenous variation in market access brought about by the U.S.-Canada Free Trade Agreement (FTA), and investigates the effect of cross-country integration on local economic scale in the U.S.-Canada border areas and its subsequent impact on entrepreneurial business formation, innovation, and firm births. The analysis then compares the

effects of the U.S.-Canada FTA with other preferential trade agreements (PTAs) signed by the U.S. such as with Australia, Chile, Jordan, Mexico, and Singapore. The researchers use the Longitudinal Business Database, Economic Census, Annual Survey of Manufacturers, and the Longitudinal Firm Trade Transaction Database (LFTTD) to analyze the role of local market

characteristics in promoting successful entrepreneurship and innovation. The analysis links trade transactions in the LFTTD and establishments in the Census of Manufacturers and Commodity Flow Survey to construct consistent yearly estimates of U.S. exports to compare data quality across the data sources at the plant level.

ALTERNATIVE APPROACHES TO THE ANALYSIS OF COMPLEX SAMPLE SURVEY DATA: APPLYING STATE-OF-THE-ART METHODS TO NCSES SURVEYS

Joseph Sakshaug – University of Michigan

Brady West – University of Michigan

Secondary analyses of survey data sets collected from large probability samples of persons or establishments further scientific progress in many academic fields. The samples underlying these data sets, while enabling inferences about population characteristics or relationships between variables of interest in populations of interest, are often “complex” in nature, employing sampling strategies such as stratification of the population and cluster sampling. These complex sample design features improve data collection

efficiency, but also complicate secondary analyses in terms of the approaches that need to be employed to account for the complex sampling statistically. Unfortunately, many secondary analysts of these data sets do not have formal training in survey statistics, and ultimately apply incorrect analytic methods when analyzing these data sets, which can lead to incorrect population inferences. This research project reviews published studies of National Center for Science and Engineering Statistics (NCSES) data sets

to understand the statistical approaches that users of these data are currently employing, reviews the existing literature in survey statistics with regard to alternative design-based and model-based approaches that are appropriate for complex samples, and then applies these alternative approaches to several NCSES data sets, comparing the resulting inferences for a variety of statistical problems and educating data users about appropriate analytic methods.

EVALUATING THE QUALITY OF THE SIPP-EHC FIELD TESTS USING ADMINISTRATIVE RECORDS AND PARADATA

Robert Belli – University of Nebraska - Lincoln

Ana Lucia Cordova-Cazar – University of Nebraska - Lincoln

Benjamin Seloske – University of Nebraska - Lincoln

The reengineering of the Survey of Income and Program Participation (SIPP) yielded a variety of innovations in the data collection, including the introduction of the Event History Calendar (EHC) method, the collection of paradata/auxiliary

data, and dependent interviewing. Using the SIPP EHC field tests, this research project involves two research objectives. First, the research project will delve into the respondent retrieval processes by parsing the audit trails generated during

EHC. Second, the research project will make significant use of paradata/auxiliary data (e.g., audit trails, contact history, sampling frame information) in order to identify data quality indicators and imputation variables.

ESTIMATING THE IMPACT OF LOCAL ECONOMIC DEVELOPMENT INCENTIVES UNDER FISCAL COMPETITION

Michael Greenstone – Massachusetts Institute of Technology

Ben Hyman – University of Pennsylvania

This project analyzes the effects of production subsidies on local and aggregate economic development outcomes. Exploiting a seven-year \$800 million subsidy lottery in California's film industry that sorted hundreds of establishments across cities of varying industrial concentration in film, the project studies how production incentives affect establishment location decisions

and their associated impact on local wages, employment, municipal revenue, and productivity. Placing these estimates of subsidy benefits in a spatial equilibrium framework, the second part of this study examines the cost-side of attracting employers with local incentives by characterizing the welfare effects of fiscal competition between municipalities. Finally,

the project leverages a policy change in 2014 that reformed the subsidy allocation mechanism from a lottery system to a "jobs-impact" ranking formula, providing an ideal laboratory for examining whether subsidy lotteries generate misallocation costs, compared to deliberate employment-based allocation mechanisms.

IMMIGRATION IMPACTS, IMMIGRANT WELL-BEING, AND GEOGRAPHIC CONTEXT USING THE 1996–2008 SURVEY OF INCOME AND PROGRAM PARTICIPATION

Emily Greenman – U.S. Census Bureau

Matthew Hall – Cornell University

Despite substantial differences in the size, history, and characteristics of foreign-born populations in local areas in the United States, immigration research has largely ignored the roles that local areas play in shaping immigrant incorporation and the consequences of

immigration. This project uses restricted-access data from the 1996, 2001, 2004, and 2008 panels of the Survey of Income and Program Participation (SIPP) to examine the local dynamics of immigrant well-being. Specifically, the research seeks to understand how features of

local labor markets and characteristics of co-ethnic populations influence economic and social incorporation of foreign-born persons, as well as explores how the associations between immigration and native-born persons' economic well-being are moderated by features of local areas.

USING RESTRICTED CENSUS DATA TO EXAMINE LABOR UNION FORMATION AND ITS WAGE EFFECTS FOR MULTINATIONAL FIRMS AND THEIR ESTABLISHMENTS IN THE MANUFACTURING SECTOR

Quan Li – Texas A&M University

Erica Palmer – Texas A&M University

This project seeks to provide estimates that establish the differences in union formation between the establishments of domestic firms and those of multinational ones, and the differences in labor compensation between unionized establishments and non-unionized

ones of multinational and non-multinational firms, respectively. This research uses restricted establishment-level and firm-level data in order to determine geographic locations of plants and their workers' compensation and benefits, as well as transactional trade data to determine

whether firms engage in related-party trade and thus are multinational or not. The research also uses data on state right-to-work law and National Labor Relations Board election results.

WHY DO VARIETY-ADJUSTED PRICE INDICES VARY SUBSTANTIALLY ACROSS LOCATIONS?

Mark Greenan – Columbia University
Ildiko Magyari – Columbia University
Scott Marchi – Columbia University
Stephen Redding – Princeton University
Dyanne Vaught – University of Michigan
David Weinstein – Columbia University

This project investigates competing explanations provided by the economic geography literature on why variety-adjusted price indices vary substantially across locations. In the presence of trade costs, more producers locate in larger cities, which implies that larger cities produce more consumer products and have lower price indices. As more productive firms are located in larger cities and more producers locate in larger cities, larger cities are characterized by lower price as firms charge lower markup. Moreover, these theories only consider the way heterogeneity in manufacturing firms' productivity across

locations drives the number of products available to consumers, abstracting from the role of non-manufacturing industries and the growing share of imported goods relative to the ones sourced domestically. Measurement of the productivity growth in the manufacturing and non-manufacturing services sectors is difficult because it is hard to measure the prices of outputs that firms sell, the prices of inputs they use, and identify whether the products sold are sourced domestically or are imported from abroad. Moreover, there has been no research investigating the link between the heterogeneity

in non-manufacturing firms' productivity across locations and the number of domestically sourced or imported products available. This is mainly because it has been difficult to obtain data on the prices of products sold by a given retailer in a given U.S. location and the number of products imported, and sold at a given U.S. location. Therefore, this project aims to fill this gap in the literature by providing a unified framework in which the previously mentioned explanations can be separated and quantified by using restricted Census microdata.

CORPORATE LIQUID ASSETS MANAGEMENT

Rick Ogden – Federal Reserve Board of Governors
Alexander Prairie – Federal Reserve Board of Governors
Damian Thomas – Federal Reserve Board of Governors
Youngsuk Yook – Federal Reserve Board of Governors

This project investigates how firms manage their liquid assets. The Census Bureau's Quarterly Financial Report (QFR) provides information on the types and amount of firms' liquid assets, including cash, deposits, commercial paper, government securities, and other short-term financial investments. The project also uses Compustat,

Federal Reserve Economic Data, and the Federal Reserve Board's Commercial Paper Statistical Release, to examine whether and how much the allocation among different liquid assets is explained by various firm characteristics, such as firm size, leverage, and financial constraints. The project also investigates whether firms

holding more excess cash are likely to invest more in relatively risky liquid assets such as commercial paper and government securities. Finally, the project investigates whether the liquid asset composition is affected by the riskiness and liquidity of individual liquid assets.

MINIMUM WAGES AND NEIGHBORHOODS

Brittany Bass – University of California, Irvine
David Neumark – University of California, Irvine

This study examines neighborhood-level employment and poverty status following changes in the minimum wage, with a focus on whether any changes in employment status

disproportionately affect socio-economically disadvantaged neighborhoods. The project will use the 2005–2013 American Community Survey (ACS) and 1960–2010 Decennial Census

microdata to generate neighborhood-level employment outcome estimates at the Census tract-level.

ETHNICITY AND INTERVIEW LANGUAGE IN THE NCVS: AN ANALYSIS OF RESPONSE PATTERNS, DATA QUALITY, AND EXPERIENCES WITH CRIME

Eric Baumer – Pennsylvania State University

This project uses internal National Crime Victimization Survey (NCVS) data from 1996–2014 that include geographic codes (i.e., zip codes, census tracts, and counties), along with NCVS language files from 2007–2014 that include the interview language for respondents. While the publicly-available NCVS data

provide a rich set of indicators, including the racial and ethnic identity of respondents in some detail, no additional items are available that might further illuminate potentially important nuances in experiences with crime or the police among ethnic minorities who differ on levels of acculturation to American

society. Linking these data to the core internal NCVS files would yield valuable insights, both for the nature and quality of data collected in non-English interviews, and for scientific understanding of how language proficiency may shape victimization risk and decisions to notify the police.

INVESTMENT IN THE HEAT OF THE MOMENT: HEATING AND COOLING UPGRADES IN RESPONSE TO EXTREME WEATHER

Alecia Cassidy – University of Michigan

Adaptation is a necessary approach to dealing with the harsh effects of climate change. This project uses panel data from the American Housing Survey to examine consumers' upgrade choices for four key

types of temperature-modifying household equipment: air conditioning, heating system, insulation, and windows/doors. Daily temperature data are matched to the AHS at the SMSA level to examine whether upgrade

choices for ACs and heaters are sensitive to extreme weather. Climate simulations will also be performed, using forecasts of temperatures from various climate scenarios until 2061.

NEIGHBORHOOD MIGRATION AND THE REPRODUCTION OF RESIDENTIAL SEGREGATION

Yana Kucheva – City College of New York

Residential segregation by race and income is an enduring feature of the landscape of American metropolitan areas. Despite some declines over the last forty years, in 2010, almost two-thirds of black households and half of Hispanic households would have had to move to achieve complete integration with the white population. Income segregation, on the other hand, has increased over time and has accelerated over the last decade. The endurance of residential segregation is particularly interesting given the high rates of residential mobility

among American households. In fact, half of all households in the U.S. change residences over a five-year period. The scope, scale, and predictors of the geographic mobility of households have evolved over time and have varied across metropolitan areas. Much less is known, however, about how households choose where to move. This project will use discrete choice models that frame geographic mobility as a multidimensional process where the decision to move is modelled using an extensive set of neighborhood characteristics. The estimates

will show the probability of moving to a neighborhood given the socioeconomic characteristics of a household and given the socioeconomic characteristics of potential neighborhood destinations within a metropolitan area. The discrete choice models will be used to simulate the conditions of residential mobility that can achieve lower levels of residential segregation. This research may generate important insights into how changing geographic mobility across racial and income groups can also change aggregate segregation levels by race and income.

THE BEHAVIOR OF CAPITAL GOODS ORDERS AND SHIPMENTS OVER THE BUSINESS CYCLE

Amanda Bauer – Federal Reserve Board of Governors
Jeremy Nalewaik – Federal Reserve Board of Governors
Eugenio Pinto – Federal Reserve Board of Governors

This project examines the firm-level mechanisms that can account for changes in the dynamics of capital goods orders and shipments in periods around recessions. Using the Manufacturers' Shipments, Inventories, and Orders Survey (M3) microdata, the project initially attempts to confirm at the firm level that shipments

become more responsive to orders when orders weaken considerably. The project then merges the M3 data with other Census Bureau microdata, including the Annual Survey of Manufactures and the Census of Manufactures, along with other publicly-available data, such as Compustat, to identify some of the factors that may help explain

cyclical changes in the response of capital goods producers to demand shocks. The project will also calibrate and estimate a structural model of how the delivery lag for capital goods is determined, and attempt to explain its behavior over the business cycle.

BANK LENDING TO BUSINESSES AND ITS IMPACT ON THE ECONOMY

Brian Chen – Harvard University

This research examines bank loans as a source of financing for small firms in the U.S. by linking PayNet loan data to Census Bureau microdata. This project will investigate lending patterns to small firms, the geographic proximity of lenders and borrowers, how manufacturers' productivity correlates with firms' borrowing, and the role of credit provision in re-allocating capital from less- to more-productive firms. Second, changes in the supply of credit to small firms will be explored as well its effect on

real outcomes such as employment, revenues, investment, and survival. The analysis will construct measures of small business lending by lender, to analyze how these are associated with lender characteristics, and then ultimately assess whether lender characteristics associated with declines in small business lending also predict worse outcomes for borrowing firms. A third group of questions revolves around the relative role of credit supply contractions and aggregate demand shortfalls during the Great Recession. A

fourth phase investigates the relationship between monetary policy, bank lending, and the real economy by correlating lender characteristics to credit risk-taking, and then studying whether these same characteristics also affect borrower firm outcomes. The project also explores the causes and consequences of financial distress by analyzing the links between the economic conditions of borrowing firms and their financial distress and debt delinquency.

IDENTIFYING THE LATER-GENERATION DESCENDANTS OF U.S. IMMIGRANTS

Maria Perez-Patron – University of Colorado Denver

Stephen Trejo – University of Texas

For a large, nationally representative cross-section of individuals, the 1990 Census Content Reinterview Survey (1990 CRS) collects unique and valuable information on the national origins of the respondents' ancestors. With this information, immigrant generation and national origins can be directly and precisely assigned for

each respondent, based on the countries of birth of the respondent's ancestors, even for those respondents whose families have lived in the United States for two or more generations. This project uses the 1990 CRS data to determine the accuracy of standard methods for identifying the later-generation descendants of immigrants and

to investigate whether the more precise information available in the CRS changes inferences about the long-term socioeconomic integration of important national origin groups. The 1990 CRS data are ideal for evaluating the potential deficiencies of current methods and improving our understanding of the long-term integration of immigrant groups.

DEMOCRACY, INSTITUTIONS, FIRMS, AND TRADE

Kishore Gawande – University of Texas

In Song Kim – Massachusetts Institute of Technology

This research seeks a deeper understanding of (1) how political institutions in partner countries (for example, democracy, autocracy, anocracy) affect the international competitiveness of U.S. firms, (2) which products that U.S. firms export and import are especially sensitive to political institutions in partner countries, and (3) whether institutions in partner countries influence the decision by U.S. firms to expand on the extensive margin (i.e., to enter new markets). These

questions underlie the nature of trade between countries and how that has evolved in the past and how it may be expected to evolve in the future. The first research question seeks an explanation of how the exports and imports of U.S. firms adapt to real-world institutions in their partner countries. The second research question takes this inquiry to the product level and asks whether partner-country institutions enhance or obstruct the competitiveness of specific products that U.S. firms export.

The third research question remains unexplored at present, but the growing importance of global supply chains makes this imperative. The decision by firms to enter new markets, or expand trade on the extensive margin, is decisive in the formation of supply chains, and this project attempts to fill an important gap in the literature by quantifying how this decision is influenced by institutions in partner countries.

INVESTIGATING THE INFLUENCE OF URBANICITY ON EMPLOYMENT, COMMUTING, AND WAGE EARNINGS AMONG PEOPLE WITH DISABILITIES

Sara McLafferty – University of Illinois at Urbana-Champaign

Sandy Wong – University of Illinois at Urbana-Champaign

The 1990 Americans with Disabilities Act (ADA) prohibits employment discrimination against Americans with disabilities, yet many individuals with disabilities continue to experience difficulty entering the labor market. While there is a wealth of research on the employment outcomes, wage earnings, and government program participation of people with disabilities in the U.S., there is relatively little consideration of how place

of residence influences these trends. This project has three objectives: (1) to investigate the effect of urbanicity (how urban or rural a locality is) on the differential employment outcomes between people with and without disabilities; (2) to examine the influence of urbanicity and commute patterns (specifically commute time and travel mode) on the variance in wage earnings between people with and without disabilities;

and (3) to analyze how urbanicity affects the degree to which Supplemental Security Income (SSI) recipients respond to survey questions related to disability. This research focuses on the working-age population (18–64 years of age) surveyed by the Census Bureau in 2000 and 2010–2014, two points in time following the enactment of the ADA.

DO SHOCKS ABROAD SHIFT SUPPLY CURVES IN THE UNITED STATES?

Parag Mahajan – University of Michigan

Dean Yang – University of Michigan

This project aims to assess whether economic, political, and natural disaster shocks abroad promoted migration from developing countries to the United States (and its states and municipalities) from 1960 until the present. This work augments and develops preliminary work suggesting a link between hurricanes in Central America and the Caribbean and subsequent migration inflows to the U.S. from those regions. Establishing

such a relationship requires reliable, year-by-year estimates of migration flows from foreign countries into the United States. Surveys that ask respondents for their country of birth and year of entry yield counts that are likely to be noisy and unreliable for use in empirical work. This project seeks to exploit the richness of the full-count Long Form Decennial Censuses from 1970, 1980, 1990, and 2000, along with the full-count ACS

surveys from 1996–2013 (and 2014–2018, when available). Access to these data allows construction of precise, year-by-year counts of immigrants. Furthermore, since the Long Form Census responses will not be constrained by categories such as “Other Caribbean,” the data will also increase the country-by-year sample size, allowing for more precise regression estimates.

GEOGRAPHIC VARIATION IN ACA-RELATED MEDIA MESSAGES AND HEALTH INSURANCE ENROLLMENT

Sarah Gollust – University of Minnesota

Pinar Karaca-Mandic – University of Minnesota

Andrew Wilcock – University of Minnesota

This project examines the relationship between media messages about the Affordable Care Act (ACA) and health insurance enrollment. The researchers first examine the associations between media market-level characteristics of broadcast media and the market-level socio-demographics of the populations plausibly exposed to

those media in late 2013. They then examine the associations between the volume and tone of media messages about the ACA with changes in insurance enrollment from 2013 to 2014/2015. They do so by estimating individual-level models of insurance coverage on indicator variables for the post-ACA period interacted with the market-level

variables and a host of state- and county-level controls. The study will contribute new understanding of an important health issue: the influence of news and advertising media on insurance enrollment during the implementation of the ACA.

BUSINESS CYCLES AND THE BEHAVIOR OF CONSTRAINED AND UNCONSTRAINED FIRMS

Kaiji Chen – Emory University

Anne Hannusch – Emory University

Patrick Higgins – Federal Reserve Bank of Atlanta

Tong Xu – Emory University

Tao Zha – Emory University

This project uses 1977–2011 microdata from the Quarterly Financial Report (QFR) for manufacturing to test whether credit constrained firms are impacted by economic shocks more than the remaining “unconstrained” firms. The question is addressed by two approaches: a standard statistical model incorporating non-confidential macroeconomic time series (mostly) from government agencies, and an economic model explaining

how uncertainty shocks impact both “constrained” and “unconstrained” firms. The economic model uses a time series measure of “micro-uncertainty” based on the cross-sectional dispersion of residuals for firm-level revenue functions in the QFR microdata. For each of the “completed” 1977–2011 panel data sets, where missing values are filled in with the simulated values from one of the imputations, firm-level financial fields

such as net sales are aggregated by year, quarter and “unconstrained”/“constrained” firm status. The aggregated financial data are merged with non-confidential macroeconomic time series data by year and quarter, and the merged data sets are used to estimate a system of dynamic regression equations to statistically test whether economic shocks have different effects on “constrained” and “unconstrained” firms.

EXPLORING HOW TRANSPORTATION INFRASTRUCTURE AFFECTS COMMUTING BEHAVIORS OF INDIVIDUALS AND LOCALITY DECISIONS OF BUSINESS ESTABLISHMENTS: A LONGITUDINAL QUASI-EXPERIMENTAL STUDY IN THE UNITED STATES

Marlon Boarnet – University of Southern California

Wei Li – Texas A&M University

Nathanael Rosenheim – Texas A&M University

Haotian Zhong – Texas A&M University

This research seeks to understand how transit improvements affect the commuting behaviors of individuals and the location decisions of business establishments. Many U.S. cities are making substantial investments in expanding their public transit systems and promoting transit-oriented developments in hopes of reducing vehicle miles driven and in making neighborhoods more compact, economically

vibrant, and transit accessible. The researchers will perform before-after, experimental or quasi-experimental analyses that can better illuminate the causal impact of transportation infrastructure investments on the economy and society. This is a two-phase process. In phase one, they analyze patterns of commuting behavior before and after the opening of new light rail transit (LRT) stations. They

construct a quasi-experimental setting by using the American Community Survey (ACS) microdata and the propensity score matching technique. In phase two, they study the location behavior of business establishments due to LRT openings by analyzing microdata from the Longitudinal Business Database (LBD) for three metropolitan areas: Dallas, Los Angeles, and Charlotte.

FIRM LEVEL ADJUSTMENT OF U.S. FOOD FIRMS TO GLOBALIZATION

Pinar Celikkol Geylani – Duquesne University

This project analyzes food manufacturing firms' adjustment to globalization by investigating the linkages among productivity, exports and imports, and the role of mergers and acquisitions on firms' decisions to conduct arm's length transactions as opposed to intra-firm trade. This project will shed light on the impact of trade in the following areas of the food manufacturing industry: (1) changes in product mix and product proliferation as

well as changes in employment due to import competition and trade reforms; (2) the relationship between mergers and acquisitions and firms' decisions to engage in arm's length vs. intra-firm trade; (3) productivity differences between firms engaged in trade relative to those that are not; (4) innovation and product differentiation as engines for growth which promote competitiveness (measured as returns to factors of

production). For the productivity estimation, this project applies a methodology to adjust the measurement of productivity by taking into consideration *both* simultaneity and omitted price variable biases. The industries where firms have differentiated products, as in the food manufacturing industry, have biased coefficient estimates using the general approach.

MODELING THE SOCIAL ENVIRONMENTAL INFLUENCES AND MECHANISMS OF SUICIDE

David Boulifard – Indiana University Bloomington

This project estimates individual-level suicide risk within the general population for sixteen states during the years 2005–2011 using person-level data from the American Community Survey (ACS) and the National Violent Death Reporting System (NVDRS), which compiles follow-back information on nearly all suicides occurring

in roughly one third of U.S. states. Appropriate combination of these data sets generates a cross-sectional sample that provides adequate power for statistical hypothesis tests and permits joint examination of individual- and community-level risk factors. This project aims to refit models on a data set constructed using restricted-access

ACS records containing county of residence. This increased geographic specificity may enhance previous findings, which include several individual-community interaction effects.

DOES CORPORATE SOCIAL RESPONSIBILITY AFFECT FIRM PRODUCTIVITY?

Rong Zhong – University of Illinois at Chicago

This project examines whether and to what extent a firm's involvement in corporate social responsibility (CSR) affects its productivity. This research will examine the average effect of CSR involvement on firm- and establishment-level productivity and will quantify the change in firm productivity in response to a change in CSR investment. Another objective of this study is to identify whether different

types of CSR investment have differential effects on firm productivity and labor productivity. CSR involvement incorporates many different dimensions, including environmental, community relations, corporate governance and employee relations. CSR investment in employee relations will have the greatest impact on labor productivity, potentially through the channel of employee retention and

engagement. Under the assumption that employees are proud to work for employers who excel at doing social good and those who invest more in employee relations, the researcher posits that they are willing to stay with those socially responsible company longer and are motivated to work harder, thereby improving labor productivity.

FIRM DISCLOSURE COSTS, PRIVATE EQUITY, AND THE DECISION TO STAY PRIVATE

James Driver – Texas A&M University

Adam Kolasinski – Texas A&M University

Jared Stanfield – University of New South Wales

This research will explore the trade-off faced by firms in choosing to remain privately incorporated or to tap public markets and whether the possibility of tapping private equity financing plays a role in this trade-off. Is the proprietary cost of disclosure an important consideration in the decision of a firm to go public or stay private, and is private equity financing an important facilitator of large

firms with high funding needs staying private in order to avoid high proprietary disclosure costs? This project will identify firms in both the Business Register and the Business Research and Development and Innovation Survey (BRDIS) that are also in portfolios of private equity funds (also called "financial sponsors"). This research will produce descriptive statistics on how such portfolio

companies differ from firms that are publicly held or held by other types of private owners, such as age, size (as measured by sales and assets), industry composition, growth, as well as their product and service innovation strategies. A better understanding of the characteristics of firms owned by private equity funds is of interest because ownership changes impact innovation, investment, and growth.

POPULATION CHANGE IN NEW ORLEANS AFTER HURRICANE KATRINA

Elizabeth Fussell – Brown University

Narayan Sastry – University of Michigan

Inku Subedi – Brown University

This project uses the American Community Survey (ACS) to study migration in and out of New Orleans (NOLA) following Hurricane Katrina. The analysis explores the demographic, social, and economic composition of annual in- and out-migration flows, examining changes in their age, sex, race, ethnicity, place of birth, education,

marital status, and income in the composition. These are analyzed in relation to change in the composition of the New Orleans population. The project uses data from the ACS for the entire country, measuring current residents and in-migrants and out-migrants from their responses to the question about place of residence one year ago and,

among movers, the locations of those places. By calculating and using propensity score weights, the researchers will assess the composition and completeness of the ACS and provide an indication of possible strengths and weaknesses in the coverage of the ACS for migration analyses.

IMPROVING THE QUALITY OF THE NATIONAL CRIME VICTIMIZATION SURVEY AND POLICE PUBLIC CONTACT SURVEY IN ORDER TO BETTER UNDERSTAND THE DETERMINATES OF HELP-SEEKING BEHAVIOR AMONG VICTIMS OF INTIMATE-PARTNER AND SEXUAL ASSAULTS

Megan Bears Augustyn – University of Texas at San Antonio

Katherine Calle Willyard – Texas A&M University

There is a rich literature examining the factors associated with help-seeking behaviors among victims of crime. However, the ability to draw conclusions from this body of research is hampered by small, highly selective (biased) samples of victims and/or a limited focus on incident and individual-level factors. One implication is a dearth of information on the general and specific effects of socio-cultural factors that likely influence reporting behaviors among

victims of violent crimes. The National Crime Victimization Survey (NCVS) contains a nationally representative sample of persons ages 12 and over and has the potential to overcome prior limitations by examining whether victims of intimate partner and sexual violence engage in two types of formal help-seeking behavior: reporting and accessing victim services. In addition to detailed information on incident and victim characteristics, the NCVS also

contains geographic identifiers that enable a researcher to link incident-level and individual-level information with contextual factors such as proactive justice policies, resource availability, and community attitudes, in order to estimate how socio-cultural factors influence the help seeking pathways of victims of intimate partner and sexual assault.

HETEROGENEITY IN WEALTH ACCUMULATION PATTERNS AND ADAPTATION

Brian Aronson – Duke University

Lisa Keister – Duke University

This project employs Survey of Income and Program Participation (SIPP) data to study immigrant adaptation by exploring the unique wealth ownership patterns for those of Chinese

ancestry, both within group and in comparison to other groups. The project will describe how the economic well-being of the ethnic Chinese population has changed over time and will

examine how government and private programs interact with one another, a primary purpose of the SIPP survey.

FORECASTING INCOME INEQUALITY IN THE UNITED STATES

Marina Gindelsky – Bureau of Economic Analysis

This study chooses models to best forecast several inequality measures, provide short-term forecasts, and examine the changing nature of the income distribution over the course of a year, as affected by survey design and business cycles. This research builds off a preliminary exercise with public-use data from the March Supplement of the Current Population Survey (CPS) to model and forecast income inequality. Extending that analysis with the use of

restricted-access CPS data will improve earlier income inequality measures. Internally topcoded data will enable the researcher to accurately model the income distribution and provide better forecasts, as the majority of the changes in income inequality have occurred in the top income percentiles, i.e., precisely those data which are topcoded. This research also examines how the income distribution changes over the course of the year. The researcher will

compare results obtained from the CPS March supplement to the rolling data available from the American Community Survey, administered monthly. Given the timing of the CPS survey (shortly before the tax filing deadline) and the number of questions on various income sources for the past calendar year, estimates obtained using the CPS are judged to most accurately represent the true income distribution of the United States.

THE LABOR MARKET EFFECTS OF THE VOTING RIGHTS ACT

Abhay Aneja – University of California, Berkeley

Carlos Avenancio – University of California, Berkeley

This project will quantify the impact of the Voting Rights Act (VRA) on labor market outcomes of persons under its purview compared to their experience prior to VRA and to those that are not affected. Using the Current Population Survey and

Decennial Census, the researchers compare the outcomes of individuals that live in counties subject to Section 5 of the VRA to those not in these counties but in similar, geographically adjacent jurisdictions. This research will provide estimates

of the economic effect of legislation designed to facilitate political participation on racial and ethnic minorities (the intended beneficiaries of these laws) as well as other affected subpopulations.

PUBLIC SUBSIDIES AND HIGHER EDUCATION

Brian McCall – University of Michigan

Isaac McFarlin – University of Michigan

This project analyzes whether there is any statistical evidence that the tuition subsidies granted to those living in community taxing districts (CCTD) in Texas are capitalized into housing prices and rental

rates. This research will analyze how changes in taxing district boundaries over time changes the college tuition individuals face and their probability of attending college. The project will also assess the robustness

of earlier findings using alternative estimation techniques to account for both college proximity and the distance individuals live from CCTD boundaries.

THE DYNAMICS OF THE ALLOCATION OF CAPITAL AND LABOR IN THE UNITED STATES

Alberto Arredondo Chavez – University of Michigan

Mike Mei – University of Michigan

Pablo Ottonello – University of Michigan

Firms vary substantially in their productivity, suggesting that the allocation of capital and labor across firms is important in determining aggregate outcomes. This project examines whether changes in this allocation over time are important for understanding aggregate trends and business cycle fluctuations

in the United States. The main measure of allocation is built on the distribution of marginal revenue products across establishments at a given point in time. How does this allocation respond to aggregate shocks? Did tightened borrowing constraints worsen the allocation of resources in the recent crisis?

Are recessions “cleansing” (times the allocation improves) or “sullying” (times when it worsens)? This project will develop new estimates of the allocation of resources across establishments and firms in the United States.

REALLOCATION AND PRODUCTIVITY GROWTH: A CROSS-SECTOR ANALYSIS

Marc Melitz – Princeton University

Gabriel Unger – Harvard University

This project studies the decomposition of productivity growth into the respective contributions of entering firms, exiting firms, surviving firms as a whole, and market share shifts between survivors, using a new decomposition method (the Dynamic

Olley-Pakes Decomposition). The study will document the extent to which this productivity decomposition differs across different sectors of the economy (e.g., whether the contribution of net entry to productivity growth in the manufacturing

sector is roughly the same as the contribution of net entry to productivity growth in the construction sector) and whether other aspects of the reallocation process (like the role of financial constraint on firm exit) are different across different sectors.

Appendix 3-B.

ABSTRACTS OF PROJECTS STARTED IN 2016: AGENCY FOR HEALTHCARE RESEARCH AND QUALITY (AHRQ) DATA OR NATIONAL CENTER FOR HEALTH STATISTICS (NCHS) DATA

Projects in this portion of the appendix use data provided by the Agency for Healthcare Research and Quality (AHRQ) or data provided by the National Center for Health Statistics (NCHS). Under authority of the Economy Act, the Center for Economic Studies hosts projects in Federal Statistical Research Data Centers using data provided by AHRQ or NCHS. AHRQ or NCHS is solely responsible for selecting projects and for conducting disclosure avoidance review.

OCCUPATIONAL VARIATION IN HEALTH CARE COVERAGE (AHRQ)

Colleen Heflin – University of Missouri

Joan Hermesen – University of Missouri

Leslie Hodges – University of Missouri

A substantial literature on gender differences in the labor market documents that women and men remain segregated in different jobs, though this segregation has diminished over time, especially for the college educated. Much of the work in this area has focused on the resulting wage disparities between men and women.

However, occupations affect more than income. Jobs largely determine one's ability to meet essential material needs, offer many nonmaterial social and psychological benefits, and provide access to social supports such as pensions and health insurance. Fewer studies have focused on linkages between gender, occupation, and these

other indicators of women's status and well-being. To contribute to research in this area, this project uses public and restricted use data from the Medical Expenditures Panel Survey from 2007 to 2013 to examine how patterns in health care coverage and health outcomes vary by gender and occupation.

MEDICAID AND LABOR SUPPLY (AHRQ)

Robert Moffitt – Johns Hopkins University

Gwyn Pauley – University of Southern California

This study proposes to fill an important gap in the research literature on the effects of Medicaid on work incentives and employment. Specifically, the study proposes to examine the effects of the 1115 and 1931 waivers that states used to extend eligibility for Medicaid to adults off welfare. The second part of this study will examine

the heterogeneous responses to access to Medicaid, for example, how the responses to health insurance varied by health status and potential income. The project uses the Medical Expenditure Panel Survey (MEPS) to study how individuals responded to state changes in Medicaid policy from 1996–2013. MEPS offers several advantages, including a rich set

of demographic characteristics, information about health and health insurance status, and labor supply. Because Medicaid eligibility varied so greatly across states, this study also relies on having access to state identifiers, which is available in the confidential MEPS data.

ACCESS TO CARE, PREVENTION, AND COSTS FOR PEOPLE WITH KIDNEY DISEASE: CAN THE ACA HELP? (AHRQ)

Abigail Barker – Washington University

Chronic kidney disease (CKD) is a condition that is rising in incidence and severity across the United States. It is divided into five categories, with the fifth stage also known as end-stage renal disease (ESRD). Not only does CKD affect approximately 28 million people, or close to 12% of the adult population, but it is very costly both to the individuals and to society. Passage of the Patient Protection and Affordable Care Act (ACA) resulted in millions of

previously uninsured individuals becoming eligible for insurance in 2014 through either a marketplace plan (that allows them to choose from multiple private plans) or Medicaid. A key group of chronic kidney disease (CKD) patients, those with some level of kidney function, are newly eligible for subsidized insurance, which, through increased access to medical care, could potentially slow their kidney disease progression and reduce the incidence

of comorbidities. This project uses five panels of the Medical Expenditure Panel Study (MEPS), 2008–2013, to assess access to medical care, utilization of care, and costs of care for persons with kidney disease, comparing and contrasting uninsured persons with both early and advanced CKD to those with health insurance, and exploring differences across various sociodemographic characteristics.

HEALTH SPENDING AND THE GREAT RECESSION (AHRQ)

Matthew Mazewski – Columbia University

Maxim Pinkovskiy – Federal Reserve Bank of New York

Understanding whether or not the recent health care spending slowdown was caused by the recession is vital in assessing whether this slowdown may soon be expected to reverse, or if it might be longer lasting. To identify the impact of the Great Recession, and of the financial bubble preceding it, this project uses the strategy that

exploits the preemption of anti-predatory lending regulations for national banks in 2004 as an exogenous shock prompting a more intense boom and bust experience over the 2000s. The researchers merge the MEPS-HC with their instrument (which is at the county level) in order to investigate how individual-level health spending and outcomes

variables responded to living in an area that had a more intense financial crisis, and to conduct analysis on the merged data set. Preliminary results on a county-level data set suggest that the financial crisis increased health care spending both during the boom and during the recession, as well as worsened health.

UTILIZATION AND DISPARITIES IN MENTAL HEALTH (AHRQ)

Bin Ge – University of Missouri

Emily Leary – University of Missouri

Iris Zachary – University of Missouri

The goal of this project is to understand how demographic, geographic, and socioeconomic indicators influence access to care and utilization of mental health. This study will utilize the linked 1997–2012 NHIS-MEPS data to follow multiple cohorts of participants for a two-year period to determine

and describe mental health care utilization. Differences within groups and across demographic and socioeconomic characteristics will be tested using non-parametric Wilcoxon sum rank tests for continuous variables and Fisher's exact tests or Chi-square tests for categorical variables. Multivariate analyses will

be utilized to determine which factors are significant contributors to the outcome(s) of interest. Poisson regression and Negative Binomial Regression will be employed to analyze mental health care utilization by treating the use of health care provider visits as counts.

MENTAL HEALTH, HUMAN CAPITAL, AND THE LABOR MARKET (AHRQ)

Christopher Cronin – University of Notre Dame

There are two primary treatment alternatives available to those with mild to moderate depression or anxiety: psychotherapy and medication. The medical literature suggests that, in many cases, psychotherapy, or a combination of therapy and medication, is more curative than medication alone. However, few individuals choose to use psychotherapy. This project develops and estimates a

dynamic model in which individuals make sequential medical treatment and labor supply decisions while jointly managing mental health and human capital. The results shed light on the relative importance of several drawbacks to psychotherapy that explain patients' reluctance to use it: (1) therapy has high time costs, which vary with an individual's opportunity cost of time and

flexibility of the work schedule; (2) therapy is less standardized than medication, which results in uncertainty about its productivity for a given individual; and (3) therapy is expensive. The estimated model is used to simulate the impacts of counterfactual policies that alter the costs associated with psychotherapy.

CONSUMER RESPONSE TO CHANGES IN ANTI-HYPERTENSIVE PHARMACEUTICAL PRICES UNDER DIFFERENT HEALTH INSURANCE REGIMES, 1996–2013 (AHRQ)

Julius Wohl – Rutgers University

Modeling the response of consumer demand to changes in price represents a classical research topic in the industrial organization literature. Studies in a multitude of industries, from automobiles to breakfast cereals to Internet advertising, show considerable heterogeneity in demand response even across products within a single market.

Each market, therefore, features its own set of challenges for empirical estimation and stimulates interesting commentary on the theory of consumer demand. This project studies demand response to anti-hypertensive pharmaceutical prices faced by consumers covered by various forms of health insurance in the United States from 1996 to

2013. The model will require an instrumental variables strategy to overcome the endogeneity problem inherent in estimating demand functions. Price variation of different anti-hypertensives ensures identification so that all parameters of the model can be recovered.

USING SATELLITE NATIONAL HEALTH ACCOUNTS TO UNDERSTAND HEALTH AND COST CHANGES (AHRQ)

Kaushik Ghosh – Clark University

Paul Imbriano – University of Michigan

Kasey Messer – University of Michigan

Susan Stewart – National Bureau of Economic Research

Though medical expenditures in the U.S. are carefully tracked by the Centers for Medicare and Medicaid Services and the Bureau of Economic Analysis, the health outcomes associated with these expenditures are not. Measuring health outcomes at the population level in conjunction with costs is critical in order to assess the impact of medical spending. To address this deficiency, the researchers have developed a detailed measure of population health and medical spending for the elderly population designed to serve as the

basis for a Satellite National Health Account. They derived spending and health measures from 1999–2009 for the elderly. A major aim of this project is to extend National Health Accounts to the population as a whole and does so for the period 1999–2015, updating the analyses as new data become available. Doing this will enable researchers to answer several questions. Is the population healthier today than it was 15 years ago, or has the increase in obesity reduced population health? Has morbidity been compressed

into a few years before death, or has it expanded? How is this trend related to medical spending? Have medical expenditures increased primarily due to greater prevalence of diseases and risk factors, or due to greater costs per person with each disease or risk factor? Have health disparities by gender, race, and socioeconomic status increased or decreased over time? What has driven these changes? How has this varied across diseases and risk factors?

THE IMPACT OF PAIN MANAGEMENT DRUGS AFTER JOINT REPLACEMENT ON HEALTH COSTS AND OUTCOMES (AHRQ)

Peter Joski – Emory University

Kenneth Thorpe – Emory University

This research project examines three related sets of issues around pain management drug use, specifically opioid only and acetaminophen-opioid combination, after joint replacement. Joint replacements of interest are hip and knee. To improve precision of estimates, consecutive years of MEPS data (2008–2013) will be pooled. The primary aims

are to: (1) determine the medical care costs among those receiving opioid only pain medication and opioid-acetaminophen combination pain medication after joint replacement; (2) determine the impact of pain management drugs on hospital readmissions within 30, 60, and 90 days of joint replacement; and (3) determine the impact

of pain management drugs on length-of-stay for joint replacement hospitalization. In addition to answering the primary aims, the researchers will update earlier data and statistics on joint replacement patients to develop a detailed demographic understanding of the patients using opioid only and opioid-acetaminophen combinations.

EFFECTS OF PRESCRIPTION DRUG MONITORING PROGRAM (PDMP) ON PATIENTS, PHYSICIANS, AND PRESCRIPTION DRUG ABUSE (AHRQ)

Zahra Mohammadi – University of Pennsylvania

The purpose of this research is the evaluation of the federal prescription drug monitoring program (PDMP), a program that collects data on medications classified as federal control substances. To assess the effectiveness of PDMP, the

researcher models the physician-patient interaction with an agency model using the MEPS data set. Although the public data set provides information on individual characteristics and medical expenditures, some non-publicly available variables

are needed, including state and ICD-9 codes. These data will be used to estimate the model over time for various states. This is because states implemented the PDMP program in different years and vary in the specification of implementation.

THE EFFECTS OF MEDICAL MARIJUANA LAWS ON PRESCRIPTION DRUG USE (AHRQ)

Charles Courtemanche – Georgia State University

Pelin Ozluk – Georgia State University

As of 2015, 23 states and the District of Columbia have laws that allow the use of marijuana for medical purposes. Other states have either passed or are in the process of passing bills that allow one ingredient in the marijuana plant, such as cannabidiol (CBD). The costs and benefits of these laws are important to guide public health and public policy. It is hypothesized that medical marijuana laws enable some people to

substitute prescription drugs with marijuana. Scientific data indicate that marijuana can be used for an extensive list of conditions including pain relief, control of nausea and vomiting, and appetite stimulation. However, results from these studies cannot be translated to population level generalizations since they come from very small and unrepresentative samples. A more recent and comprehensive study shows that medical

marijuana laws increase the frequency of binge drinking for those aged 21 and above, but they have limited impacts on pain medication misuse (i.e., use without prescription). This research's aim is to understand the effect of the law on the prescription drug use over a longer range of time (1996–2012) on a nationally representative sample by using the restricted version of the MEPS data.

CIGARETTE SMOKING AND CAUSE-SPECIFIC MORTALITY IN THE UNITED STATES (NCHS)

Joseph Lariscy – Duke University

Richard Rogers – University of Colorado

This project will develop a more comprehensive understanding of the linkage between cigarette smoking and cause-specific adult mortality in the contemporary United States than exists to date. The researchers will use data from the National Health Interview Survey Linked Mortality Files (NHIS-LMF). This project builds directly on an influential and well-publicized recent article that found a substantially higher mortality burden of cigarette smoking in the United States than has been previously estimated. That recent paper, while very important and influential, was not based on

nationally representative data; it contained a lower percentage of minority group members and a much higher percentage of highly educated individuals than is the case in the U.S. population. Moreover, the previous study did not include all of the potential confounding factors of the smoking-mortality relationship that are available in the data set the researchers will employ. The additional confounding variables to be used (e.g., marital status, region of residence, weight-for-height, and health insurance coverage) will allow the researchers to develop even more precise estimates of

the relationship between cigarette smoking and cause specific mortality in the United States. Finally, the previous study did not assess the relationship between cigarette smoking and cause-specific mortality for key population subgroups, defined both by gender and race/ethnicity (non-Hispanic white, non-Hispanic black, and Hispanic). The subgroup-specific estimates will allow the researchers to pinpoint the specific subcategories of the population for which smoking cessation efforts should particularly focus.

EATING AND LEISURE-TIME PHYSICAL ACTIVITY: ROLE OF EMPOWERING WORKING ENVIRONMENTS (NCHS)

Jessica Williams – University of Kansas

Evidence suggests that healthful behaviors such as eating nutritiously and exercising can improve health outcomes. Several other studies have connected work characteristics, such as long work hours, to health behaviors. Based on the successes and failures identified by previous studies, the National Institute for Occupational Safety and Health (NIOSH) introduced the Total Worker Health™ strategy to integrate health promotion with occupational safety and health. Despite the roll-out of Total Worker Health™, there

is much to be done to figure out exactly which work-related factors are the most associated with health behaviors and if they differ by occupation and industry. This study will compare the associations of shift work, self-reported work characteristics, and objective measures of job characteristics with health behaviors in the 2010 NHIS-OHS. This study will use the NHIS detailed occupational and industry codes to link to O*NET data, allowing for a more detailed representation of job characteristics and removing concerns

about endogeneity. Objectively measured strains, such as those from O*NET, have been shown to differ from self-reported strain and so provides an interesting feature to the study. Because very few surveys in the U.S. have incorporated detailed health status information, workplace exposures, organization, and detailed nutrition and exercise questions, the 2010 NHIS provides many variables that have often been omitted in previous work.

GEOGRAPHIC VARIATION IN ACA-RELATED MEDIA MESSAGES AND INSURANCE ENROLLMENT (NCHS)

*Sarah Gollust – University of Minnesota
Pinar Karaca-Mandic – University of Minnesota
Xuanzi Qin – University of Minnesota
Andrew Wilcock – University of Minnesota*

It is well known that the mass media influence the public's attitudes, opinions, and behaviors, so the media likely shape Americans' perceptions of the Affordable Care Act (ACA) and the health insurance options available to them. An important aspect of ACA implementation is the geographic differences in the political environments and insurance options available, which would produce geographic variation in ACA-related media portrayals. This project estimates

variation in media messages about the ACA and examines associations with health insurance enrollment. Three principal objectives guide the research: (1) to document geographic variation in the volume and tone of media messages about ACA implementation across U.S. media markets from October 2013 to March 2014; (2) to examine associations between characteristics of media markets and the individual-level socio-demographics of the

individuals plausibly exposed to those media from October 1 to December 31, 2013; and (3) to examine associations between the volume and tone of media messages about the ACA with changes in insurance enrollment from 2013 to 2014. This project will contribute to the evidence-base on the effectiveness of outreach and media strategies related to ACA access expansions.

EFFECTS OF DISABILITY INSURANCE ON HEALTH AND WELL-BEING (NCHS)

Sarah Prenovitz – Cornell University

Individuals who are awarded Social Security Disability Insurance (DI) receive a suite of benefits, most notably cash payments and Medicare eligibility, and are subject to strong incentives to suppress earnings. Applicants waiting in the often lengthy determination process also face strong incentives to remain out of the labor force but receive no material benefits from the program. A substantial

literature in economics has considered the effects of being awarded benefits on workforce participation and earnings, but the effects of the disability determination process have received much less attention, and other outcomes such as health and financial well-being have not been examined in much detail. This project will use data from the National Health Interview Survey (NHIS) linked

to SSA administrative records to identify the effect of DI awards and the time spent waiting for a decision on health and financial well-being. Differences in average processing time and likelihood of being awarded disability by state and month will be used as sources of variation in order to isolate the causal effects of the disability determination process.

THE ASSOCIATION BETWEEN CHILD'S INFLUENZA VACCINATION STATUS AND HOUSEHOLD ADULTS' WORK LOSS DAYS (NCHS)

William Bleser – Pennsylvania State University

Patricia Miranda – Pennsylvania State University

Joel Segel – Pennsylvania State University

Children under the age of 5 years are at increased risk of influenza-related doctor visits, urgent care visits, ER visits, and hospitalizations, and older children experience the highest rates of influenza infection, serving as a major source of transmission within communities, impacting their schools, medical offices, and families. Influenza vaccination uptake in U.S. children, however, remains substantially lower than the federal government's Healthy People 2020 objective of 70% uptake. Influenza infection in children is

known to cause household influenza transmission and parental work absenteeism, and parental work loss to any illness is significantly higher during the influenza season. The association of influenza vaccination in children with household adult work loss is, however, understudied. This gap in knowledge may prevent some adults from vaccinating their children because we lack an understanding of the broader benefits of childhood influenza vaccination in children to other family members. This research aims to understand the

association of child vaccination status with work loss of other adults living in the same household in a nationally representative sample. This is done by merging core components of the 2014 National Health Interview Survey together to link children to adults in their household. The researchers adjust for household state of residence to avoid biased estimates, given that employment laws vary across U.S. states. This is particularly important for the estimates of our moderating variable of interest, paid sick leave status.

BETTER UNDERSTANDING DETERMINANTS OF INFLUENZA VERSUS OTHER VACCINATION IN YOUNG U.S. CHILDREN (NCHS)

William Bleser – Pennsylvania State University

Patricia Miranda – Pennsylvania State University

Joel Segel – Pennsylvania State University

Children under the age of 5 years are at increased risk of influenza simply due to their age, and all children serve as a major source of transmission. The Centers for Disease Control and Prevention recommends all persons 6 months and older receive influenza vaccination as the best preventive measure, but influenza vaccination uptake in U.S. children, however, remains substantially lower than uptake

of other vaccinations. This project aims to understand better the disparities and determinants influencing the high percentage of young children up to date on influenza versus a series of other recommended vaccines in young U.S. children. This is accomplished using the 2011 National Immunization Survey (NIS), which contains provider verified data allowing for calculation of nationally

representative up-to-date percentages among young children. In doing so, we seek to include constructs for parental perceptions, satisfaction, concerns and delay/refusal surrounding vaccination, factors shown to be crucial to understanding child vaccination rates in the United States. These variables are available in the NIS through the restricted Parental Concerns Module.

CONVENIENT AMBULATORY CARE AND HEALTH INFORMATION EXCHANGE (NCHS)

Ji Eun Chang – New York University

Joe Ladapo – New York University

Convenient ambulatory care refers to non-traditional sites that make it easier and often cheaper for consumers to access care. Recent years have experienced a rapid rise in such non-traditional sites, such as urgent care centers and freestanding clinics. Despite this growth, research around convenient care has been sparse and little is

known about how these clinics operate. This project seeks to extend the research around convenient care by exploring the extent to which convenient care sites utilize electronic health records and exchange health information with other providers. Both electronic health record use and electronic health information exchange are

foundational to improving informational continuity. Utilizing two years of NEHRS data, the researchers compare such activities at urgent care centers and freestanding clinics with that of more traditional ambulatory care sites such as physicians' offices and community health centers.

COMMONWEALTH FUND HEALTH SYSTEM TRACKING PROJECT (NCHS)

Sharon Glied – New York University

Stephanie Ma – New York University

David Radley – Institute for Healthcare Improvement

Claudia Solis-Roman – New York University

Since 2006, the Commonwealth Fund's health system scorecards have tracked critical aspects of performance related to access, service delivery and quality, costs, and health outcomes. The Scorecard series reports 30–45 health system performance metrics at the local, state, and

national levels. The specific goal of this research is to use the restricted BRFSS fields to update BRFSS-derived performance metrics for inclusion in our Health System Performance public reporting. The data derived from this effort are used to answer the question: How

does health system performance vary by geographic region? In addition, the data serve as publicly reported performance benchmarks and improvement targets for use by policymakers, researchers, and others.

UNDERSTANDING PREDICTORS OF ASIAN AMERICAN CHILDHOOD OBESITY (NCHS)

Won Cook – Alcohol Research Group

To help build an evidence base for addressing childhood obesity and related health and social issues affecting Asian Americans (AAs), this project aims to develop epidemiologic profiles of AA subgroups with high

prevalence of childhood overweight/obesity and to identify risk factors of childhood overweight/obesity. Gender, U.S. nativity, Asian ethnicity, socioeconomic status (SES), physical activity, diet, and health

care access and use will be considered as potential predictors. Special attention will be given to SES as a moderator of the relationships between other key risk factors and childhood overweight/obesity.

A SECOND LOOK AT THE HEALTH EFFECTS OF MILITARY SERVICE USING THE VIETNAM-ERA DRAFT LOTTERY AS A POTENTIALLY INVALID INSTRUMENTAL VARIABLE (NCHS)

*Alfonso Flores-Lagunes – Syracuse University
Xintong Wang – Binghamton University*

Military service may have long lasting detrimental effects on veterans' physical and psychological health. Estimating these effects is difficult because veterans might be different from non-veterans in a number of relevant dimensions (e.g., socio-economic background) before the military service, which could confound the true causal health effects of military service. Numerous researchers have used the lottery drafts of the Vietnam War

era as a source of exogenous variation to achieve identification of the causal treatment effects of military service on veterans' health outcomes. This study aims to determine whether the draft lotteries of the Vietnam War era have a direct effect on subject cohorts' health outcomes through channels other than actual military service, thus shedding light on the validity of the exclusion restriction assumption. Second, it will estimate

bounds for the military service's causal effects on veterans' health outcomes without assuming that the exclusion restriction of the draft lotteries holds. The econometric methodology to be employed uses individual-level data of the National Health Interview Survey (NHIS) and the exact birth date variables of each individual to determine the draft eligibility status.

EFFECTS OF EDUCATION ON HEALTH AND OTHER OUTCOMES USING VARIATION IN SOCIAL SECURITY BENEFITS FOR CHILDREN (NCHS)

Barton Willage – Cornell University

There is mixed evidence on the effect of education on health; however, the results looking at the effects of higher education are often positive. Much of the economics research leverages the Vietnam draft or college openings to isolate the effect of education on health, including reduced smoking and improved birth outcomes. This study will examine the causal impact of higher education on health

behaviors and health outcomes using a new source of variation in higher education attainment, changes in Social Security benefits. Before 1965 and after 1981, recipients of Social Security received additional benefits for children up to age 18; between 1965 and 1981, benefits covered children up to age 22 if they enrolled in post-secondary education. During the 1965–1981 period, descendants

of Social Security recipients had a strong financial incentive to enroll in college. This policy variation, which only affects individuals who were under 18 when their parents started receiving benefits, will be used as variation in college attendance to determine the causal effect of education on health and other outcomes, such as use of government programs.

EFFECTS OF STATE IMMIGRATION POLICY CONTEXT ON IMMIGRANT HEALTH AND WELL-BEING (NCHS)

Jen-Hao Chen – University of Missouri

Lisa Flores – University of Missouri

Sarah May – University of Missouri

Stephanie Potochnick – University of Missouri

An absence of national immigration policy reform has led states to adopt their own policies. Such policies address public benefit eligibility, housing/employment benefits, education access, and law enforcement. This study examines the effects of two types of state-level policy on immigrants' health and well-being: (1) in-state resident tuition (IRT) policies, which allow noncitizen students to pay in-state college tuition, and (2) state-level policies, which determine immigrants' access to

the social safety net (e.g. TANF, Medicaid). Previous research indicates state IRT policies increase college enrollment of noncitizen Latina/o students and may inspire non-citizen high school students to succeed in high school and attend college. Research has yet to examine the impact IRT policies have on the psychological well-being of immigrants. This research has yet to examine psychological well-being and stress-related health outcomes likely to be impacted by the economic strain

immigrant exclusion creates. This project uses the NHIS because it meets all criteria required to assess how state policy context affects immigrants' well-being. The researchers examine whether immigrants' mental health differs in states with and without IRT policy and whether immigrants' mental health and stress-related physical health differ by state safety net policies. They utilize difference-in-difference models to examine each policy's impact on well-being.

CLOSING THE GAP: THE IMPACT OF THE MEDICAID PRIMARY CARE RATE INCREASE ON ACCESS AND HEALTH (NCHS)

Diane Alexander – Federal Reserve Bank of Chicago

Janet Currie – Princeton University

Molly Schnell – Princeton University

In 2013 and 2014, Medicaid reimbursement rates were raised to match Medicare rates for primary care visits. Despite a price tag in the billions, little is known about the program's effect. This project aims to exploit state-level variation in the size of the increase in reimbursement

rates to quantify the impact of the policy on access and quality of care. Using the NHIS, the researchers attempt to show the relationship between an increase in reimbursement rates with the probability that a child had a well-child checkup exam and the probability that an adult had a

regular source of primary care. The results should indicate that the heterogeneity of impacts can be explained partially by differences in expectations, with states expecting the rate increase to be extended experiencing larger effects.

DOES THE ACA'S MEDICAID EXPANSION IMPROVE HEALTH? (NCHS)

Rina Na – University of Kansas

David Slusky – University of Kansas

This project investigates the impact of the recent ACA Medicaid expansion on health, including obesity, high blood pressure, high cholesterol, diabetes, self-reported health, and mental health. Many low-income individuals cannot afford to manage chronic conditions due to a lack of health insurance, leading to poorer health. The ACA was intended to close this coverage gap but several states declined to expand Medicaid. This project seeks to use this variation to identify Medicaid's impact on health. This project will examine the crucial and less

known intersections of health insurance (from the partial Medicaid expansion), health care (through reduced out-of-pocket costs from insurance), and health itself (from examination and blood work). The two dimensions of the "difference in differences" framework use here are whether a state will be an expansion state, and whether that expansion has been implemented, and so compares the changes in the states that implemented the expansion to changes over the same time period in the states that did not. The sample will be those age

19–64 (ineligible programs for children/elderly) and household income under 138% of Federal Poverty Level (those eligible for the expansion). 2007–2013 will be used as control years to be compared to 2014. By quantifying the effects of the partial Medicaid expansion, this project will improve our understanding of how public policy decisions regarding health coverage impact health outcomes. As many states consider expanding, knowing the benefits and costs to their citizens would allow policy makers and voters to make more informed decisions.

GEOGRAPHIC TRENDS AND CORRELATES OF AWARENESS OF A PREDIABETES DIAGNOSIS AMONG U.S. ADULTS (NCHS)

Dina Griaudzė – University of Michigan

Justin List – University of Michigan

Prediabetes is a precursor condition to type 2 diabetes mellitus, and both are rising in prevalence in the United States. This project describes awareness of a prediabetes diagnosis among U.S. adults who meet laboratory test criteria for prediabetes among U.S. adults who participated in the National Health and Nutrition Examination Survey (NHANES) from 2005–2012, and identifies factors associated with greater

awareness of a prediabetes diagnosis. The researchers seek to identify county-level factors that are associated with greater rates of awareness of a prediabetes diagnosis by linking NHANES data with non-NCHS data (Area Resource Health Resources File, AHRF) that will allow them to examine whether certain county-level characteristics are associated with prediabetes awareness. The project examines

differences in prediabetes awareness based on whether or not a county is a designated primary care health professional shortage area (HPSA), number of federally-qualified health centers (FQHC), number of rural health clinics, and urban versus rural designation using the Rural-Urban Continuum Codes contained in AHRF.

ASSESSING RELATIONSHIPS BETWEEN FOOD INSECURITY, SNAP PARTICIPATION, AND CHILDREN'S HEALTH OUTCOMES AMONG HISPANIC HOUSEHOLDS IN NEW VERSUS ESTABLISHED DESTINATIONS ALONG THE RURAL-URBAN CONTINUUM (NCHS)

*Raeven Chandler – Pennsylvania State University
Shannon Monnat – Pennsylvania State University
Jennifer Van Hook – Pennsylvania State University*

In 2013, 30 percent of Hispanic children lived in a food insecure household, putting these children at risk for poor physical and mental health outcomes. The problem could worsen, particularly in rural areas, due to Hispanic geographic dispersion to places that previously had small or nonexistent Hispanic populations. Despite spatial variation in several child health outcomes, we know little about how Hispanic food insecurity varies spatially, particularly across new versus established destinations

and degrees of rurality. It is also unclear how residence in these different contexts is associated with the Supplemental Nutrition Assistance Program's (SNAP) ability to reduce food insecurity and related negative health outcomes among children. This project examines how household food insecurity and Hispanic children's health outcomes vary across new and established destinations and by rurality and whether SNAP participation improves food security and health among Hispanic children

in these places. The project will link community and state characteristics to household, adult, and child records in the National Health Interview Survey (NHIS), including: the size and maturity of the Latino/Hispanic community (i.e., "new" versus "established" destinations); rural-urban continuum codes; food environment; socioeconomic disadvantage; racial-ethnic and foreign born composition; and state SNAP policies.

PREDICTORS OF THE DEVELOPMENT OF ALCOHOL-RELATED MORBIDITY AND MORTALITY (NCHS)

*Emilie Shireman – University of Missouri
Douglas Steinley – University of Missouri*

The goal of this project is to expand on an already existing literature examining the predictors of alcohol-related morbidity and mortality, including an individual's alcohol use and proximity to alcohol outlets. Using data from the National Center for Health Statistics Medicare and Medicaid enrollment and claims data set collected by the Centers

for Medicare and Medicaid Services (CMS), this research will examine the development of alcohol-related disease and of general health consequences. Specifically, the analyses will determine whether there is evidence for qualitatively different groups of individuals who vary based on development of their health consequences

(e.g., individuals who increase, decrease, or remain stable in their health problems). To find potentially significant predictors and outcomes of the development of health consequences, data will be drawn from the linked National Health Nutrition Examination Survey Epidemiologic Follow-up Study (NHEFS) and mortality data.

AN ECONOMETRIC FRAMEWORK FOR CAUSAL ANALYSIS OF OBESITY POLICY ALTERNATIVES (NCHS)

Charles Courtemanche – Georgia State University

The empirical evidence currently available regarding which obesity-related policy interventions are most effective, and which behavioral contexts to target, is generally not causally interpretable. A proposed new method is designed to account for potential endogeneity and, therefore, will produce results that are causally interpretable and policy relevant. An econometric framework, combined with survey data, can be used to assess the effectiveness of alternative potential policy interventions for improving energy

balance and health outcomes. The modeling framework will comprise two levels of obesity-related behavioral causality: (1) modeling energy-balance related lifestyle choices as functions of prospective policy lever variables, and (2) modeling energy balance as a function of the obesity-relevant lifestyle measures from the first component of the model. The model will be used to conduct a comparative effectiveness analysis of alternative policies via a database that matches individuals' body weights and dietary, exercise,

smoking, and drinking habits to county characteristics such as prices, store densities, nutritional education spending, and labor force participation rates. Policy-driven lifestyle outcomes include: carbohydrate consumption, fat consumption, protein consumption, smoking, drinking, and exercise. The results from these two levels of analysis will be combined to estimate the overall effects of policy changes on energy balance.

HEALTH STATUS AND EFFECTS OF THE AFFORDABLE CARE ACT ON INSURANCE, ACCESS, USE, AND FINANCIAL WELL-BEING (NCHS)

Amy Davidoff – Yale University

The Affordable Care Act (ACA) likely represents the largest expansion of Medicaid and publicly subsidized private coverage since the inception of the Medicaid and Medicare programs in 1965. This project seeks to understand the impact of the implementation of the legislation on outcomes of lower income adults, particularly those with cancer and other chronic health conditions and/or functional limitations. To examine the effects of the ACA, the proposed project will

pool 2012–2014 National Health Interview Survey (NHIS) data to examine changes in insurance coverage, access to care, healthcare use, and financial well-being before (2012–2013) and after (2014) full ACA implementation. The project will focus on working aged adults (18–64 years) from the sample adult file, supplemented with measures from other NHIS files. Key measures to be constructed from the data will include current insurance coverage, individual health status, and various demographic

and socioeconomic measures at the level of a “health insurance unit” or HIU. Information on state of residence will be used to link Medicaid expansion status and Medicaid eligibility thresholds to assess eligibility to receive subsidized benefits. The analysis will use a quasi-experimental design, with a pre-post analysis, and comparison of groups targeted for coverage compared to those with higher incomes.

USING NATURAL EXPERIMENTS TO IDENTIFY THE IMPACTS OF SNAP ON CHILD AND ADULT HEALTH (NCHS)

Daniel Miller – Boston University

Taryn Morrissey – American University

The Supplemental Nutrition Assistance Program (SNAP) is the largest of the USDA's food and nutrition assistance programs. While recent research has demonstrated that SNAP achieves its intended aims to improve food security and nutrition, SNAP may also impact the health of children and adults in recipient households. However, selection into SNAP participation presents a well-known methodological challenge to examining its

impacts. This project uses two natural experiments to examine the effects of SNAP receipt and benefit level on a number of health outcomes in the National Health Interview Survey (NHIS). Both of these natural experiments act as exogenous factors affecting SNAP participation or benefit levels, ruling out concerns about selection bias. The project uses restricted data on state of residence, detailed information on income-to-poverty

threshold ratio, and restricted data on sampling strata and primary sampling units. State of residence and income-to-poverty threshold ratio are both necessary to account for differences in income and categorical eligibility across states for the period of related policy changes. State of residence (along with month and year of data collection) is also necessary to merge information on state SNAP eligibility policies.

THE EFFECTS OF PREGNANCY-RELATED MEDICAID EXPANSIONS ON MATERNAL, INFANT, AND CHILD HEALTH (NCHS)

Melanie Guldi – University of Florida

Sarah Hamersma – Syracuse University

Exploring ways to improve initial infant health is a key area of research interest because improvements to early child health have been shown to be important for both short-run and long-run outcomes. The Medicaid eligibility expansions in the late 1980s increased access to publicly funded medical care for a large number of women, many of whom would

not have been able to afford treatment without these expansions. From a public health perspective, it is important to understand both the short- and long-run benefits of such a large expansion. Although some research has been conducted on how the expansions influenced outcomes around the time of birth, it is not known how these influenced later outcomes. This

project examines whether and to what degree the expansions increased use of prenatal care and antenatal maternal and postnatal maternal and infant outcomes. The research explores how the expansions around the time of birth influenced child development and maternal outcomes three years later.

THE REAL VALUE OF SNAP BENEFITS AND HEALTH OUTCOMES (NCHS)

Garret Christensen – University of California, Berkeley

Hilary Hoynes – University of California, Berkeley

Krista Ruffini – University of California, Berkeley

Food stamp (SNAP) benefit levels are not adjusted geographically, with the exception of Hawaii and Alaska. But there is significant variation in food cost across the country, and thus there is significant variation in the real value of SNAP benefits. The goal of this project is to use this variation to determine the effect of SNAP on health outcomes and food security. The project uses panel data on regional food prices and the cost of the Thrifty Food Plan (TFP), as measured by the

USDA's Quarterly Food at Home Price Database (QFAHPD), as well as Bureau of Labor Statistics unemployment and inflation characteristics, to examine how SNAP, which is not adjusted for regional food prices, affects the mental and physical health outcomes of SNAP recipients, and geo-located National Health Interview Survey (NHIS) data. Examining SNAP recipients only avoids the problem of selection into the problem and will result in well-identified causal

estimates of the effect of the program in terms of adequacy of the benefits for purchase of the Thrifty Food Plan. The findings will help determine whether or not SNAP is inadequate for lower income people in areas with more expensive food, greater unemployment, or generally worse economic conditions, and whether some suffer worse health due to the fact that SNAP benefit levels are largely not regionally adjusted.

THE IMPACT OF ECONOMIC RECESSION ON SERVICE INTENSITY IN PHYSICIAN OFFICES (NCHS)

Jing Li – Weill Cornell Medical College

Moon Parks – University of California, Berkeley

Physician behavioral change in response to income shocks is considered as important evidence for supplier-induced demand. This project aims to see whether there are changes in overall service intensity and practice pattern during patient visits to physician offices as a consequence of the 2008–2009 economic recession. This study uses the 2006–2010 National Ambulatory Medical Care Survey

(NAMCS). Measures of service intensity include number of procedures per visit, number of medications per visit, number of tests per visit, duration per visit and whether a return appointment is specified. These outcomes are examined separately for Medicare and privately insured patients. The log number of visits from privately insured patients to each provider during the survey period

serves as the independent variable and proxy for income shock. Endogeneity is addressed by using the county-level unemployment rate during the same month that each provider was surveyed as an instrument for number of visits. This strategy requires mapping provider location to the corresponding monthly county-level unemployment rate.

THE ROLES OF HEALTH CONDITION, HEALTH BEHAVIORS, AND SOCIOECONOMIC FACTORS IN RACIAL DISPARITIES IN SEPSIS (NCHS)

Jordan Kempker – Emory University

This project examines the social and health determinants of racial disparities in sepsis mortality; tests the hypothesis that socioeconomic factors, health behaviors, and health status will explain the racial disparity in sepsis mortality; and examines if healthcare utilization is associated with decreased sepsis mortality in fully adjusted multivariate, multivariable models. Data for the project

include the 1999–2005 National Health Interview Surveys (NHIS) linked at the individual-level to outcomes in the National Death Index (NDI), for years 1999–2011. The outcomes of interest in this analysis is all-cause mortality, septicemia mortality, and influenza/pneumonia mortality, defined using the National Vital Statistics ICD-10 coding schema. The researcher uses modeling strategies to examine and rank

the effects of each socioeconomic and health variable on all-cause and cause-specific age- and sex-adjusted mortality. Then each variable will be assessed for its confounding and/or mediation effects on the Black race risk ratio for all-cause and cause-specific mortality. Finally, these analyses will inform the development of multivariate, multivariable models.

STATE POLICY AND IMMIGRANT HEALTH OUTCOMES (NCHS)

Steven Wallace – University of California, Los Angeles

Maria-Elena Young – University of California, Los Angeles

This study examines the relationship between state-level immigration policies and disparities in non-citizens' access to health care, health behaviors, and mental health. Immigration policy constitutes a form of health policy and its impact on immigrant populations should be better understood. This research project will create and

analyze a multilevel data set that includes population health indicators and immigration and socio-demographic data for adults in all U.S. states and an index score of each state's level of exclusionary immigration policy. It will test the association between a state's exclusionary policy score and outcomes in access to health care, health

behaviors, and mental health, adjusting for individual- and state-level characteristics. The research will test interactions by nativity, citizenship status, and ethnicity/race. This study could make a significant contribution to understanding how state-level immigration policy affects the health of immigrant populations.

EFFECTS OF SAFETY NET PROGRAM PARTICIPATION ON HEALTH AND MEDICAID EXPENDITURES (NCHS)

Andrew Breck – New York University

Brian Elbel – New York University

The federal safety net provides a critical cushion against periods of economic hardship. However, little is known about how participation in these government programs affects health or health-care expenditures. This project explores patterns in the utilization of multiple government run social services, and the impact

these programs have on participant long-term health. It hypothesizes that the combined benefits of participation in multiple programs does have a positive effect of reducing body weight and the medical expenses for the treatment of obesity related disease. The restricted-use, linked National Center for Health

Statistics – Center for Medicare and Medicaid Services data provide a unique opportunity to explore their hypothesized causal relationship between participation in nonhealth-focused public programs and health outcomes.

DATA TABLES ON URBANIZATION LEVEL BY INSURANCE STATUS (NCHS)

Xuyang Tang – University of Minnesota

Joanna Turner – University of Minnesota

Karen Turner – University of Minnesota

Medicaid is a joint federal and state program that, in FY2014, provided health care coverage to 76.6 million enrollees. Medicaid covers low-income children and adults, the aged, and people with disabilities. It covers benefits not typically covered by other insurers, such as long-term services and supports. It also pays for Medicare premiums and cost sharing for more than 10 million people who are enrolled in both Medicare and Medicaid, known

as dually eligible individuals. All states have Medicaid programs and some states have large rural populations, many of whom are Medicaid beneficiaries. This project examines the role of Medicaid in rural areas and how rural Medicaid enrollees may differ from other rural residents. This project describes utilization of health care services and barriers in access to care for Medicaid enrollees compared to privately insured and uninsured enrollees by geography.

Analyses are conducted by the 6-level NCHS Urban-Rural classification scheme for a variety of sub-populations including Medicaid enrollees. The researchers examine population characteristics and differences in utilization and access by insurance coverage type, limitation of activity or disability status (adults), special health care needs status (children), income, age groups (children and non-elderly adults), and residence in a Medicaid expansion state.

IMPACT OF EXPANDED NURSE PRACTITIONER SCOPE OF PRACTICE LAWS ON HEALTH CARE ACCESS, UTILIZATION, AND AFFORDABILITY (NCHS)

Michel Boudreaux – University of Maryland

Heather Dahlen – Medica Research Institute

The expansion of health insurance coverage through the Affordable Care Act, coupled with an aging U.S. population, has increased the demand for primary care providers. States have the ability to increase primary care capacity through legislation such as the expansion of nurse practitioner (NP) scope of practice, which would

allow more autonomy in treating patients. Since 2006, 20 states and Washington D.C. have adopted legislation that reduces these restrictions on NPs. This project examines how expanding the scope of nurse practitioners affects providers and patients. It explores the mechanisms behind state decisions to expand NP scope of

practice and predict how health care access, use, and affordability would change for individuals living in (relatively) restrictive states should their state move to less restrictive legislation. This research focuses also on differential impacts of the effect of changed NP scope of practice on health outcomes for underserved populations.

IMMIGRATION ENFORCEMENT AND THE HEALTH OF IMMIGRANTS AND THEIR CHILDREN (NCHS)

Ying Huang – University at Albany, SUNY

Kate Strully – University at Albany, SUNY

This project analyzes the National Health Interview Survey (NHIS) to understand how state and county immigration enforcement laws affect the health of non-citizen immigrants from Mexico and Central America and their children. The focus is on three sets of laws that vary over time and across states and counties: (1) E-Verify mandates that require employers in an area to verify a prospective employee's work authorization using a national electronic system; (2) laws that regulate immigrants' access to driver's licenses; and

(3) laws that authorize local law enforcement agencies to check individuals' citizenship status and set in motion deportation proceedings. This subpopulation of immigrants is most likely to experience social and economic stress due to the enactment of these laws. Using 18 years of data (1997–2014) from the NHIS, the researchers test whether these three sets of laws affects physical health, mental health, and access to health care for immigrants and their children. They also explore whether consequences of immigration laws

are modified by proximity to co-ethnic populations, and whether these laws may have unintended consequences for individuals who may be incorrectly perceived to be immigrants (e.g., native-born Hispanics). Using regression analysis and a difference-in-difference approach, they compare trends in health among subpopulations that are likely to be impacted by the above laws (i.e., "treatment" groups) and comparable subpopulations that should not be impacted by the laws (i.e., "control" groups).

DEFENSIVE INVESTMENTS AND THE DEMAND FOR AIR QUALITY: EVIDENCE FROM THE NOX BUDGET PROGRAM (NCHS)

Joseph Shapiro – Yale University

The demand for air quality depends on health impacts and defensive investments that improve health, but little research assesses the empirical importance of defenses. This project studies the NOx Budget Program (NBP), an important cap-and-trade market for nitrogen oxides (NOx) emissions, a key ingredient in

ozone air pollution. A rich quasi-experiment suggests that the NBP decreased NOx emissions, ambient ozone concentrations, pharmaceutical expenditures, and mortality rates. Reductions in pharmaceutical purchases and mortality are valued at about \$800 million and \$1.5 billion annually, respectively, in a region covering 19 eastern

and midwestern states. These findings suggest that defensive investments account for more than one-third of the willingness-to-pay for reductions in NOx emissions. Further, the NBP's estimated benefits easily exceed its costs, and instrumental variable estimates indicate that the estimated benefits of NOx reductions are substantial.

THE IMPACT OF CHANGES IN MEDICAID ELIGIBILITY THRESHOLDS ON DURATION OF HEALTH INSURANCE COVERAGE AND ACCESS TO HEALTH CARE (NCHS)

Heather Dahlen – Medica Research Institute

Sharon Long – Urban Institute

The primary goal of the Affordable Care Act (ACA) is to provide more Americans access to affordable, quality health insurance. Unlike many private insurance plans, when an individual enrolls in Medicaid they are not automatically eligible for coverage for the next 12 months, and may

lose eligibility and coverage due to events like failing to submit verification paperwork, finding a job that offers coverage, or increases in income. The expansion of Medicaid income eligibility thresholds provides additional protection against such losses of eligibility which, in theory, should improve how

many months of the year the individual is insured. The goal of this research will be to address two research questions. First, does expanded Medicaid eligibility lead to greater continuity of insurance coverage? Second, does greater continuity of coverage lead to better access to care?

Appendix 4.

CENTER FOR ECONOMIC STUDIES (CES) DISCUSSION PAPERS: 2016

CES Discussion Papers are available at <www.census.gov/ces>.

16-01	"The Impact of Information and Communication Technology Adoption on Multinational Firm Boundary Decisions," by Wenjie Chen and Fariha Kamal, January 2016.	16-10	"Using Partially Synthetic Microdata to Protect Sensitive Cells in Business Statistics," by Javier Miranda and Lars Vilhuber, February 2016.
16-02	"Plant Exit and U.S. Imports from Low-Wage Countries," by Abigail Cooke, Thomas Kemeny, and David L. Rigby, January 2016.	16-11	"Learning and the Value of Relationships in International Trade," by Ryan Monarch and Tim Schmidt-Eisenlohr, February 2016.
16-03	"Task Trade and the Wage Effects of Import Competition," by Abigail Cooke, Thomas Kemeny, and David L. Rigby, January 2016.	16-12	"The Shifting Job Tenure Distribution," by Henry R. Hyatt and James R. Spletzer, February 2016.
16-04	"Immigrant Diversity and Complex Problem Solving," by Abigail Cooke and Thomas Kemeny, January 2016.	16-13	"Asset Allocation in Bankruptcy," by Shai Bernstein, Emanuele Colonnelli, and Benjamin Iverson, February 2016.
16-05	"Cheap Imports and the Loss of U.S. Manufacturing Jobs," by Abigail Cooke, Thomas Kemeny, David L. Rigby, January 2016.	16-14	"Accounting for the New Gains from Trade Liberalization," by Chang-Tai Hsieh, Nicholas Li, Ralph Ossa, and Mu-Jeung Yang, March 2016.
16-06	"Data in Action: Data-Driven Decision Making in U.S. Manufacturing," by Erik Brynjolfsson and Kristina McElheran, January 2016.	16-15	"An 'Algorithmic Links with Probabilities' Crosswalk for USPC and CPC Patent Classifications with an Application Towards Industrial Technology Composition," by Nathan Goldschlag, Travis J. Lybbert, and Nikolas J. Zolas, March 2016.
16-07	"Urban Immigrant Diversity and Inclusive Institutions," by Abigail Cooke and Thomas Kemeny, January 2016.	16-16	"Externalities of Public Housing: The Effect of Public Housing Demolitions on Local Crime," by Danielle H. Sandler, March 2016.
16-08	"Urban-Suburban Migration in the United States, 1955-2000," by Todd K. Gardner, February 2016.	16-17	"Documenting the Business Register and Related Economic Business Data," by Bethany DeSalvo, Frank F. Limehouse, and Shawn D. Klimek, March 2016.
16-09	"Offshoring Production while Offshoring Pollution?" by Xiaoyang Li and Yue M. Zhou, February 2016.	16-18	"Changes in Neighborhood Inequality, 2000-2010," by Daniel H. Weinberg, March 2016.

16-19	“Outsourced R&D and GDP Growth,” by Anne Marie Knott, March 2016.	16-29	“Does Family Planning Increase Children’s Opportunities? Evidence from the War on Poverty and the Early Years of Title X,” by Martha J. Bailey, Olga Malkova, and Zoë M. McLaren, June 2016.
16-20	“Reconciling the Firm Size and Innovation Puzzle,” by Anne Marie Knott and Carl Vieregger, March 2016.	16-30	“Cogeneration Technology Adoption in the U.S.,” by Mary Jialin Li, June 2016.
16-21	“State and Local Determinants of Employment Outcomes among Individuals with Disabilities,” by Purvi Sevak, John O’Neill, Andrew Houtenville, and Debra L. Brucker, March 2016.	16-31	“Creditor Rights and Entrepreneurship: Evidence from Fraudulent Transfer Law,” by Nuri Ersahin, Rustom M. Irani, and Katherine Waldock, July 2016.
16-22	“Structural versus Ethnic Dimensions of Housing Segregation,” by Yana Kucheva and Richard Sander, March 2016.	16-32	“Research Funding and Regional Economies,” by Nathan Goldschlag, Stefano Bianchini, Julia Lane, Joseba SanMartin Sola, and Bruce Weinberg, July 2016.
16-23	“Black Pioneers, Intermetropolitan Movers, and Housing Desegregation,” by Yana Kucheva and Richard Sander, March 2016.	16-33	“The Dynamics of Latino-Owned Business with Comparisons to Other Ethnicities,” by Craig Wesley Carpenter, July 2016.
16-24	“Income Effects in Labor Supply: Evidence from Child-Related Tax Benefits,” by Philippe Wingender and Sara LaLumia, May 2016.	16-34	“The Impact of Latino-Owned Business on Local Economic Performance,” by Craig Wesley Carpenter, July 2016.
16-25	“How Credit Constraints Impact Job Finding Rates, Sorting and Aggregate Output,” by Kyle Herkenhoff, Gordon Phillips, and Ethan Cohen-Cole, May 2016.	16-35	“Introduction of Head Start and Maternal Labor Supply: Evidence from a Regression Discontinuity Design,” by Cuiping Long, July 2016.
16-26	“The Impact of Bank Credit on Labor Reallocation and Aggregate Industry Productivity,” by John (Jianqiu) Bai, Daniel Carvalho, and Gordon Phillips, May 2016.	16-36	“Bright Minds, Big Rent: Gentrification and the Rising Returns to Skill,” by Lena Edlund, Cecilia Machado, and Maria Sviatschi, August 2016.
16-27	“Energy Prices, Pass-Through, and Incidence in U.S. Manufacturing,” by Sharat Ganapati, Joseph S. Shapiro, and Reed Walker, May 2016.	16-37	“Disconnected Geography: A Spatial Analysis of Disconnected Youth in the United States,” by Jeremy W. Bray, Brooks Depro, Dorren McMahon, Marion Siegle, and Lee Mobley, August 2016.
16-28	“The Management and Organizational Practices Survey (MOPS): An Overview,” by Catherine Buffington, Lucia Foster, Ron Jarmin, and Scott Ohlmacher, June 2016.		

16-38	“The Role of Start-Ups in Structural Transformation,” by Robert C. Dent, Fatih Karahan, Benjamin Pugsley, and Aysegul Sahin, August 2016.	16-47	“Are Firm-Level Idiosyncratic Shocks Important for U.S. Aggregate Volatility?” by Chen Yeh, November 2016.
16-39	“The Timing of Teenage Births and the Signaling Value of a High School Degree,” by Danielle H. Sandler and Lisa Schulkind, September 2016.	16-48	“Taking the Leap: The Determinants of Entrepreneurs Hiring their First Employee,” by Robert W. Fairlie and Javier Miranda, November 2016.
16-40	“The Consequences of Long Term Unemployment: Evidence from Matched Employer-Employee Data,” by Katharine G. Abraham, Kristin Sandusky, John Haltiwanger, and James R. Spletzer, September 2016.	16-49	“High Growth Young Firms: Contribution to Job, Output and Productivity Growth,” by John Haltiwanger, Ron S. Jarmin, Robert Kulick, and Javier Miranda, November 2016.
16-41	“A Portrait of Firms that Invest in R&D,” by Lucia Foster, Cheryl Grim, and Nikolas Zolas, September 2016.	16-50	“Measuring Cross-Country Differences in Misallocation,” by Mitsukuni Nishida, Amil Petrin, Martin Rotemberg, and T. Kirk White, November 2016.
16-42	“Does Higher Productivity Dispersion Imply Greater Misallocation? A Theoretical and Empirical Analysis,” by J. David Brown, Emin Dinlersoz, and John S. Earle, September 2016.	16-51	“White-Latino Residential Attainments and Segregation in Six Cities: Assessing the Role of Micro-Level Factors,” by Amber Fox Crowell and Mark Fossett, November 2016.
16-43	“Evidence for the Effects of Mergers on Market Power and Efficiency,” by Bruce A. Blonigen and Justin R. Pierce, October 2016.	16-52	“Measuring Plant Level Energy Efficiency and Technical Change in the U.S. Metal-Based Durable Manufacturing Sector Using Stochastic Frontier Analysis,” by Gale Boyd and Jonathan M. Lee, November 2016.
16-44	“Interstate Migration and Employer-to-Employer Transitions in the U.S.: New Evidence from Administrative Records Data,” by Henry Hyatt, Erika McEntarfer, Ken Ueda, and Alexandria Zhang, October 2016.	16-53	“The Management and Organizational Practices Survey (MOPS): Cognitive Testing,” by Catherine Buffington, Kenny Herrell, and Scott Ohlmacher, November 2016.
16-45	“Entrepreneurial Teams’ Acquisition of Talent: A Two-Sided Approach,” by Florence Honoré and Martin Ganco, November 2016.	16-54	“Making a Motivated Manager: A Census Data Investigation into Efficiency Differences Between Franchisee and Franchisor-Owned Restaurants,” by Matthew Sveum and Michael Sykuta, December 2016
16-46	“Wage Determination in Social Occupations: The Role of Individual Social Capital,” by Julie L. Hotchkiss and Anil Rupasingha, November 2016.		

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| 16-55 | "Business Dynamics Statistics of High Tech Industries," by Nathan Goldschlag and Javier Miranda, December 2016. | 16-57 | "Hires and Separations in Equilibrium," by Edward P. Lazear and Kristin McCue, December 2016. |
| 16-56 | "The Impact of Immigration on the Labor Market Outcomes of Native Workers: Evidence Using Longitudinal Data from the LEHD," by Ted Mouw, December 2016. | 16-58 | "Food and Agricultural Industries: Opportunities for Improving Measurement and Reporting," by Richard Dunn and Brent Hueth, December 2016. |

Appendix 5.

NEW CENSUS DATA AVAILABLE THROUGH RESEARCH DATA CENTERS (RDCs) IN 2016¹

BUSINESS DATA

Data product	Description	New or updated years
Annual Capital Expenditures Survey (ACES) and Information and Communication Technology (ICT) Survey	The Annual Capital Expenditures Survey (ACES) is a firm-level survey that collects industry-level data on capital investment in new and used structures and equipment. Every 5 years, additional detail on expenditure by asset type (by industry) is collected. Beginning in 2003 (with the exception of 2014), the Information and Communication Technology (ICT) supplement to the ACES collects data on noncapitalized and capitalized expenditure on ICT equipment and computer software. All nonfarm sectors of the economy are covered by these surveys.	2013–2014
Annual Retail Trade Survey	The Annual Retail Trade Survey (ARTS) collects data on total annual sales, e-commerce sales, end-of-year inventories (including those held outside the United States), purchases, total operating expenses, and end-of-year accounts receivable for retail businesses located in the United States. The ARTS collects annual sales and e-commerce sales for accommodation and food service firms.	2013
Annual Survey of Entrepreneurs	The Annual Survey of Entrepreneurs (ASE) collects data on the characteristics of businesses and their owners. For each owner, information is collected on sex, age, citizenship, ethnicity, race, military service, education, prior ownership experience, reasons for owning the business, percent of ownership, method of acquisition and when, job functions, and hours worked. Business characteristics collected include age, aspirations, sources and amounts of capital funding, profitability, negative impacts, customer characteristics, exports and other foreign activities, e-commerce, and types of workers employed. In 2014, the ASE also included a topical module on business innovation and research and development activities and expenditures. The 2015 ASE module concerns management practices and alternate forms of work arrangements.	2014
Annual Survey of Manufactures	The Annual Survey of Manufactures (ASM) collects data on manufacturers, including employment, payroll, workers' hours, payroll supplements, value of shipments, cost of materials, value added, capital expenditures, inventories, and energy consumption. It also provides data on the value of shipments by product class and materials consumed by material code.	2014

¹ These tables do not include custom extract data made available to approved projects from the U.S. Census Bureau, the National Center for Health Statistics, and the Agency for Healthcare Research and Quality.

Data product	Description	New or updated years
Annual Wholesale Trade Survey	The Annual Wholesale Trade Survey (AWTS) collects data on total annual sales, e-commerce sales, end-of-year inventories (including those held outside the United States), purchases, and total operating expenses for merchant wholesalers and for manufacturers' sales branches and offices (MSBOs) located in the United States. The AWTS also began collecting sales, commissions, and operating expenses data for agents, brokers, and electronic markets (AGBRs) in 2005.	2013
Business Research and Development and Innovation Survey	The Business Research and Development and Innovation Survey (BRDIS) collects a broad range of R&D data from both manufacturing and service companies along with select innovation data. Data include financial measures of R&D activity, measures related to R&D management and strategy, measures of company R&D activity funded by organizations not owned by the company, measures related to R&D employment, and measures related to intellectual property, technology transfer, and innovation. The BRDIS replaced the Survey of Industrial Research and Development (SIRD) in 2008.	2013
Integrated Longitudinal Business Database	The Integrated Longitudinal Business Database (ILBD) is a research data set constructed at the Center for Economic Studies that contains the roughly 20 million businesses in the U.S. economy (per year) <i>without</i> paid employees from 1977 to 2013. The ILBD contains a firm identifier that allows the linkage of these nonemployers across time and to businesses with <i>paid</i> employees found in other Census Bureau surveys and databases. The ILBD can be used to investigate nonemployer entry and exit, gross revenue flows, and transitions between nonemployer and employer status.	2011–2013
Longitudinal Business Database	The Longitudinal Business Database (LBD) is a research data set constructed at the Center for Economic Studies that contains basic information on the universe of all U.S. business establishments with <i>paid</i> employees from 1976 to 2014. The LBD can be used to examine entry and exit, gross job flows, and changes in the structure of the U.S. economy. The LBD can be linked to other Census Bureau surveys at the establishment and firm level.	2014
Longitudinal Firm Trade Transactions Database	The Longitudinal Firm Trade Transactions Database (LFTTD) links individual trade transactions to the firms that undertake them. It links export transactions to the U.S. exporter and import transactions to the U.S. importer. The firm identifier in the LFTTD allows linkages to other Census Bureau surveys and databases.	2012–2014
Manufacturers' Unfilled Orders Survey	The Manufacturers' Unfilled Orders Survey (M3UFO) is a firm-level survey that collects data on annual sales and unfilled orders for select manufacturing industries and is used to benchmark the data collected in the monthly Manufacturers' Shipments, Inventories, and Orders (M3) survey. Annual sales from M3UFO is used to analyze differences in reporting between the company-based survey and plant level data from the Annual Survey of Manufactures.	2009–2013

Data product	Description	New or updated years
Medical Expenditure Panel Survey (MEPS)—Insurance Component (IC)	The Medical Expenditure Panel Survey-Insurance Component (MEPS-IC) collects data on health insurance plans obtained through employers. Data collected include the number and type of private insurance plans offered, benefits associated with these plans, premiums, contributions by employers and employees, eligibility requirements, and out-of-pocket costs. Data also include both employer (e.g., size, industry) and workforce (e.g., percent of workers female, earn low/medium/high wage) characteristics.	2015
Monthly Retail Trade Survey	The Monthly Retail Trade Survey (MRTS) collects data on monthly sales, e-commerce sales, and inventories for retail and food service businesses.	1997–2015
Monthly Wholesale Trade Survey	The Monthly Wholesale Trade Survey (MWTS) collects data on monthly sales and inventories for merchant wholesalers, excluding manufacturers' sales branches and offices (MSBOs) and agents, brokers, and electronic markets (AGBRs).	2006–2015
Survey of Business Owners	The Survey of Business Owners (SBO) includes data on sales and receipts, annual payroll, employment, and demographic characteristics of the business owner, including sex, ethnicity, race, and veteran status. The SBO includes all nonfarm businesses filing tax forms as individual proprietorships, partnerships, or any type of corporation, with or without paid employees, and with receipts of \$1,000 or more.	2012

HOUSEHOLD DATA²

Data product	Description	New or updated years
American Community Survey	The American Community Survey (ACS) is an ongoing nationwide household survey that collects information traditionally collected on the long-form of the decennial census, including age, sex, race, family, ancestry, languages, place of birth, disability, education, veteran status, income, employment, health insurance, commuting, and housing characteristics.	2015 (1-year file)
American Housing Survey	The American Housing Survey (AHS) collects data on the nation's housing, including apartments, single-family homes, mobile homes, vacant housing units, household characteristics, income, housing and neighborhood quality, housing costs, equipment and fuels, size of housing unit, and recent movers. The national survey has a sample spread throughout the United States, while the metropolitan survey focuses on housing units in specific metropolitan areas. National data are collected in odd-numbered years, and data for each of 47 selected metropolitan areas are collected about every 4 years, with an average of 12 metropolitan areas included each year.	2015 (National)
Current Population Survey	The Current Population Survey (CPS) is a monthly survey of households cosponsored by the Census Bureau and the Bureau of Labor Statistics. The CPS is the primary source of labor force statistics and is also used to collect data on a wide variety of topics through supplemental questions to the basic monthly questions. These supplemental inquiries vary month to month and are usually conducted annually or biennially, depending on the needs of the supplement's sponsor. The <i>Annual Social and Economic</i> (ASEC, or "March") supplement of the CPS collects data on work experience, several sources of income, migration, household composition, health insurance coverage, and receipt of noncash benefits. The <i>Volunteers</i> supplement of the CPS, conducted annually in September, collects data on participation in volunteer activities, including types, frequency, and kinds of organizations. Nonvolunteers are asked about barriers to participation and encouragements needed. The <i>School Enrollment</i> supplement of the CPS, conducted annually in October, collects data on school enrollment (from nursery through professional schools) and high school graduation. The <i>Voting and Registration</i> supplement of the CPS, conducted biennially in November, collects data on the voting behavior of citizens aged 18 and up. The <i>Tobacco Use</i> supplement of the CPS, conducted every 3–4 years, collects data on current and former tobacco use, restrictions on smoking at home and the workplace, smoking cessation activity, attitudes toward smoking, and other topics.	2014–2015 (ASEC/ March) 2002–2015 (Volunteers) 2004–2014 (School Enrollment) 1998, 2000, 2002, 2004 (Voting and Reg- istration) 1998–1999, 2000, 2010–2011 (Tobacco Use)

²These demographic or decennial files maintained at the Center for Economic Studies and for the RDCs are the internal versions, and they provide researchers with variables and detailed information that are not available in the corresponding public-use files.

Data product	Description	New or updated years
National Crime Victimization Survey	The National Crime Victimization Survey (NCVS) collects data from respondents who are 12 years of age or older regarding the amount and kinds of crime committed against them during a specific 6-month reference period preceding the month of interview. The NCVS also collects detailed information about specific incidents of criminal victimization. The NCVS is also periodically used as the vehicle for fielding a number of supplements to provide additional information about crime and victimization. For example, the <i>School Crime</i> supplement on the NCVS collects information about victimization, crime, and safety at school, and includes topics such as alcohol and drug availability; fighting, bullying, and hate-related behaviors; fear and avoidance behaviors; gun and weapon carrying; and gangs.	2013–2014 2013 (School Crime)
Rental Housing Finance Survey	The Rental Housing Finance Survey (RHFS) collects data on the financial, mortgage, and property characteristics of multifamily rental housing properties. The RHFS includes financing information, with an emphasis on new originations for purchase, refinancing, and loan terms associated with these originations. The survey also includes information on property characteristics, including the number of units (by bedroom count), monthly rent (by bedroom count), amenities, and age. The survey also collects data on rental income, operating expenses (by type), capital improvements (by type), ownership, and Section 8 tenancy.	2014
Survey of Income and Program Participation	The Survey of Income and Program Participation (SIPP) collects data on the source and amount of income, labor force information, program participation and eligibility, and general demographic characteristics. The data are used to measure the effectiveness of existing federal, state, and local programs, to estimate future costs and coverage for government programs, and to provide improved statistics on the distribution of income in the United States.	2014 Panel: Wave 1

Appendix 6.

FEDERAL STATISTICAL RESEARCH DATA CENTER (FSRDC) PARTNERS

FEDERAL PARTNERS

Agency for Healthcare Research and Quality
Bureau of Labor Statistics
National Center for Health Statistics
U.S. Census Bureau

INSTITUTIONAL PARTNERS

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Emory University
Federal Reserve Bank of Atlanta
Florida State University
Georgia Institute of Technology
Georgia State University
University of Alabama
University of Georgia
University of Tennessee, Knoxville

Boston RDC

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National Bureau of Economic Research

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Jon Stiles, Executive Director

University of California, Berkeley
University of California, Davis
Social Sciences Data Laboratory

California RDC (Irvine)

Antonio Rodriguez-Lopez, Executive Director

University of California, Irvine

California RDC (Stanford)

Matthew Snipp, Executive Director

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Institute for Research in the Social Sciences

California RDC (UCLA)

Till von Wachter, Executive Director

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California RDC (USC)

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Shawn Klimek, Director of Research, CES

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Board of Governors of the Federal Reserve System
Bureau of Economic Analysis

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University of Nebraska Medical Center
University of Iowa
Iowa State University
University of South Dakota

Chicago RDC

Bhash Mazumder, Executive Director

Federal Reserve Bank of Chicago
Northwestern University
University of Chicago
University of Illinois
University of Notre Dame

Georgetown RDC

J. Bradford Jensen, Executive Director

Georgetown University
McCourt School of Public Policy
Massive Data Institute

Kansas City RDC

Jon Willis, Executive Director

Federal Reserve Bank of Kansas City
Kauffman Foundation
University of Kansas
University of Kansas Medical Center
University of Missouri
University of Missouri – Kansas City

Kentucky RDC (Lexington)

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University of Kentucky
Indiana University
Ohio State University
University of Cincinnati
University of Louisville

Maryland RDC (College Park)

Liu Yang, Executive Director

University of Maryland
Robert H. Smith School of Business
University of Maryland School of Public Health
University of Maryland College of Behavioral and
Social Science

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University of Michigan
Institute for Social Research
Michigan State University

Minnesota RDC (Minneapolis)

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J. Michael Oakes, Co-Executive Director

University of Minnesota
Minnesota Population Center

Missouri RDC (Columbia)

Colleen Heflin, Co-Executive Director
Peter Mueser, Co-Executive Director

University of Missouri

New York RDC (Baruch)

Diane Gibson, Executive Director

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City University of New York
Columbia University
Cornell University
Federal Reserve Bank of New York
National Bureau of Economic Research
New York University
Princeton University
Russell Sage Foundation
Syracuse University
University at Albany, State University of New York
Yale University

New York RDC (Cornell)

William Block, Executive Director
Warren Brown, Research Director

Baruch College
City University of New York
Columbia University
Cornell University
Federal Reserve Bank of New York
National Bureau of Economic Research
New York University
Princeton University
Russell Sage Foundation
Syracuse University
University at Albany, State University of New York
Yale University

Northwest RDC (Seattle)

Mark Ellis, Executive Director

University of Washington
State of Washington, Office of Financial
Management
Center for Studies in Demography and Ecology

Pennsylvania State University RDC

Mark Roberts, Executive Director

Drexel University
Federal Reserve Bank of Philadelphia
Pennsylvania State University
University of Pennsylvania

Philadelphia RDC

Jeffrey Lin, Co-Executive Director
Iouri Manovskii, Co-Executive Director

Drexel University
Federal Reserve Bank of Philadelphia
Pennsylvania State University
University of Pennsylvania

Rocky Mountain RDC (Boulder)

Jani Little, Executive Director

University of Colorado Boulder
University of Colorado Denver
University of Colorado Anschutz Medical Campus
Colorado State University
University of Denver
University of Wyoming

Texas RDC (College Station)

Mark Fossett, Executive Director

Texas A&M University
Texas A&M University System
Baylor University
Rice University
University of Texas at Austin
University of Texas at San Antonio

Texas RDC (Austin)

Kelly Raley, Executive Director

Texas A&M University
Texas A&M University System
Baylor University
Rice University
University of Texas at Austin
University of Texas at San Antonio

Triangle RDC (Duke and RTI)

Gale Boyd, Executive Director

Duke University
North Carolina State University
RTI International
University of North Carolina at Chapel Hill

UIUC RDC (Urbana-Champaign)

Martin Perry, Executive Director

University of Illinois at Urbana-Champaign

Wisconsin RDC (Madison)

Brent Heuth, Executive Director

University of Wisconsin – Madison

Yale RDC

Peter Schott, Executive Director

Cowles Foundation at Yale University

Appendix 7.

LONGITUDINAL EMPLOYER–HOUSEHOLD DYNAMICS (LEHD) PARTNERS

Under the Local Employment Dynamics (LED) partnership, the Longitudinal Employer–Household Dynamics (LEHD) program at the Center for Economic Studies produces new, cost-effective, public-use information combining federal, state, and Census Bureau data on employers and employees. The LED partnership works to fill critical data gaps and provide indicators increasingly needed by state and local authorities to make informed decisions about their economies.

LOCAL EMPLOYMENT DYNAMICS (LED) STEERING COMMITTEE

As of January 2017.

New England (*Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont*)
Bruce DeMay, Director
Economic and Labor Market Information Bureau
New Hampshire Employment Security

New York/New Jersey
Leonard Preston, Chief
Labor Market Information
New Jersey Department of Labor and Workforce Development

Mid-Atlantic (*Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia*)
Keith Bailey, Director
Center for Workforce Information and Analysis
Pennsylvania Department of Labor and Industry

Southeast (*Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee*)
Adrienne Johnston, Director
Bureau of Labor Market Statistics
Florida Department of Economic Opportunity

Midwest (*Illinois, Indiana, Iowa, Michigan, Minnesota, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin*)
Coretta Pettway, Chief
Labor Market Information Bureau
Ohio Department of Job and Family Services

Mountain-Plains (*Colorado, Kansas, Missouri, Utah, Wyoming*)
Carrie Mayne, Director
Research and Analysis
Utah Department of Workforce Services

Southwest (*Arkansas, Louisiana, New Mexico, Oklahoma, Texas*)
Sachin Chintawar, Director
Research and Statistics Division
Louisiana Workforce Commission

Western (*Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Washington*)
Bill Anderson, Chief Economist
Research and Analysis Bureau
Nevada Department of Employment, Training, and Rehabilitation

FEDERAL PARTNERS

U.S. Department of Agriculture
U.S. Department of Commerce, National Oceanic and Atmospheric Administration
U.S. Department of Homeland Security, Federal Emergency Management Agency
U.S. Department of the Interior
U.S. Office of Personnel Management
U.S. Bureau of Labor Statistics
Internal Revenue Service

STATE EDUCATION PARTNERS

University of Texas System
Colorado Department of Higher Education

STATE PARTNERS

As of December 2016.

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Jim Henry, Director
Labor Market Information Division
Alabama Department of Labor

Alaska

Dan Robinson, Director
Research and Analysis Section
Alaska Department of Labor and Workforce
Development

Arizona

Paul Shannon, Director
Office of Economic Opportunity
Arizona Commerce Authority

Arkansas

Robert S. Marek, Administrative Services Manager
Employment and Training Program Operations
Arkansas Department of Workforce Services

California

Spencer Wong, Chief
Labor Market Information Division
California Employment Development Department

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Paul Schacht, Director
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Colorado Department of Labor and Employment

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Andrew Condon, Director
Office of Research
Connecticut Department of Labor

Delaware

George Sharpley, Economist and Chief
Office of Occupational and Labor Market
Information
Delaware Department of Labor

District of Columbia

Saikou Diallo, Associate Director
Office of Labor Market Policy and Information
District of Columbia Department of Employment
Services

Florida

Adrienne Johnston, Director
Bureau of Labor Market Statistics
Florida Department of Economic Opportunity

Georgia

Mark Watson, Director
Workforce Statistics and Economic Research
Georgia Department of Labor

Guam

Gary Hiles, Chief Economist
Government of Guam
Department of Labor

Hawaii

Phyllis A. Dayao, Chief
Research and Statistics Office
Hawaii Department of Labor and Industrial
Relations

Idaho

Bob Uhlenkott, Chief
Research and Analysis Bureau
Idaho Department of Labor

Illinois

Evelina Tainer Loescher, Division Manager
Economic Information and Analysis
Illinois Department of Employment Security

Indiana

Fran Valentine, Director
Research and Analysis
Indiana Department of Workforce Development

Iowa

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CENTER FOR ECONOMIC STUDIES (CES) ORGANIZATIONAL CHART (November 2016)

